

APF



An MDM PUBLICATION
Issue 29 – March 2009

www.mdmpublishing.com

ASIA PACIFIC FIRE MAGAZINE

REPORTING TO THE ASIA PACIFIC FIRE PROTECTION AND FIRE SERVICE INDUSTRY

TASK FORCE TIPS, INC.



2800 East Evans Avenue, Valparaiso, IN 46383-6940 USA
International +1.219.548.4000 • www.tft.com • intsales@tft.com



ATEX Version Available 4500 l/min Hurricane Remote Controlled and Manual Monitor

The **Hurricane RC** with a single low-profile waterway discharge has high flow and low friction loss characteristics. The Hurricane RC is capable of flowing 4500 l/min while maintaining a FULL 450° horizontal travel. Designed for 12 or 24 VDC operation, comes with factory installed control panel mounted on the monitor. Electric drives and control box are waterproof. An automatic drain protects the monitor from freezing.

- Maximum Operating Pressure 14 bar
- Only 1.9 bar friction loss at 4500 l/min
- Field Changeable Stops



ATEX Version Available 6000 l/min Typhoon Remote Controlled and Manual Monitor

The **Typhoon RC** is designed for 12 or 24 VDC operation, comes with factory installed control panel mounted on the monitor for horizontal rotation, elevation, nozzle pattern, programmable PARK and Oscillate. The Typhoon RC is capable of flowing 6000 l/min while maintaining a FULL 450° horizontal rotation. Electric drives and control box are waterproof.

- Maximum Operating Pressure 14 bar
- Only 1.3 bar friction loss at 6000 l/min
- Field Changeable Stops



ATEX Version Available 8000 l/min Monsoon Remote Controlled and Manual Monitor

The **Monsoon RC** is designed for 12 or 24 VDC operation, comes with factory installed control panel mounted on the monitor for horizontal rotation, elevation, nozzle pattern, programmable PARK and Oscillate. The Monsoon RC is capable of flowing 8000 l/min while maintaining a FULL 450° horizontal rotation. Electric drives and control box are waterproof.

- Maximum Operating Pressure 14 bar
- Only 1 bar friction loss at 8000 l/min
- Field Changeable Stops



AUSTRALIA

Gaam Emergency Products-AU
Phone: 61394661244
Fax: 61394664743
iprice@tycoint.com
www.gaam.com.au



INDONESIA

Pt Palmas Entraco
Phone: 6221384 1681
Fax: 6221380 2660
sales@palmas.co.id



NEW ZEALAND

Tyco Safety Products
Phone: 6445608127
Fax: 6498270844
tsp.sales.nz@tycoint.com
www.tycoservices.co.nz



SOUTH KOREA

Shilla Fire Co., Ltd.
Phone: 820236659011
Fax: 820236639113
kofire77@hotmail.com
www.firekorea.com



CHINA

Shanghai Jin De Industry
Phone: 862136050599
Fax: 862136055599
sjinde@163.com
www.sjinde.com



JAPAN

Yone Corporation
Phone: 81758211185
Fax: 81758012263
t.yone@myad.jp
www.yone-co.co.jp



PHILIPPINES

Alliance Industrial Sales
Phone: 6328908818
Fax: 6328960083
alliance8_jcy@pacific.net.ph



TAIWAN

Yone Corporation
Phone: 81758211185
Fax: 81758012263
t.yone@myad.jp
www.yone-co.co.jp



HONG KONG

Rotter International Ltd.
Phone: 85227517770
Fax: 85227562051
jacky@rotter.com.hk
www.rotterbiz.com



MALAYSIA

CME Technologies SDN BHD
Phone: 60356331188
Fax: 60356343838
khairi@cme.com.my
www.cme.com.my



SINGAPORE

S.K. Fire Pte. Ltd.
Phone: 6568623155
Fax: 6568620273
houchin@skfire.com
www.skfire.com



THAILAND

Anti-fire Co., Ltd.
Phone: 66 2 259-6898
Fax: 66 2 258-2422
sithichai@antifire.com
www.antifire.com

For excellent quality fire fighting equipment visit www.tft.com and call your local distributor for a demonstration.

**March 2009
Issue 29**



Front Cover Picture: Firefighter training in Chongqing, China

Picture courtesy of Dräger Safety Asia Pte Ltd

Publishers

Mark Seton & David Staddon

Editorial Contributors

Geary Roberts, Roger Weinmeister, Alan Elder, Mat Lock, Brad Harvey, Brendon Morris, Jeff O. Stull, Grace G. Stull, John Saunders, Kurt Werner, Brendan MacGrath

APF is published quarterly by:

MDM Publishing Ltd

The Abbey Manor Business Centre,
The Abbey, Preston Road, Yeovil,
Somerset BA20 2EN, United Kingdom

Tel: +44 (0) 1935 426 428

Fax: +44 (0) 1935 426 926

Email: mark.seton@apfmag.com

Website: www.mdmpublishing.com

©All rights reserved

Subscription Rates

Sterling – £50.00

AUS Dollars – \$100.00

US Dollars – \$70.00

(Prices include Postage and Packing)

ISSN – 1476-1386

DISCLAIMER:

The views and opinions expressed in ASIA PACIFIC FIRE MAGAZINE are not necessarily those of MDM Publishing Ltd. The magazine and publishers are in no way responsible or legally liable for any errors or anomalies made within the editorial by our authors. All articles are protected by copyright and written permission must be sought from the publishers for reprinting or any form of duplication of any of the magazines content. Any queries should be addressed in writing to the publishers.

Reprints of articles are available on request. Prices on application to the Publishers.

Page design by Dorchester

Typesetting Group Ltd

Printed in Singapore

Contents



15-18

05 NFPA Foreword

07-13 News &
Product Profiles

15-18 Evaluating
Foam Proportioning
with Confidence

21-23 PPV
Technology to
Ventilate Large
Structures



45-46



25-28

25-28 Demand
Increases for Clean
Agents

31-33 Challenging
Training in Chongqing

35-37 Evaluating
Thermal Imagers

39-42 ARFF Vehicle
Roundup



55-57



35-37

45-46 Medical Care
in Extrication Rescue

49-52
Considerations for
Selecting Firefighter
Protective Ensembles

55-57 DIM
Instrument Training -
The Achilles Heel in
Fire Service CBRN
Response?



59-61



39-42

59-61 Protection
that Respects the
Environment

63-65 Protecting
Warehouses - One
Sprinkler Head Fits All?

66-71 Distributor &
Representative Office
Listing

72 Advertisers' Index



63-65



MDM Pu
WORLDWIDE

www.mdmpu

Hi-Tech P

FEATU

VIRTUAL ELECTRONIC MAGAZINES

BANNER ADVERTISEMENTS

FULL PDF FILE DOWNLOADS

LIVE LINKS

**SIMPL
COMPA**

MDM Publishing Ltd, The Abbey Manor Business Centre,

Tel: +44 (0) 1935 426 428

www.mdmpublishing.com

blishing Ltd
MEDIA

blishing.com **ortal Site** **RING**

FULL VIRTUAL ARCHIVE OF BACK ISSUES

LIVE REAL PAGE TURNING SOFTWARE

EVENTS PAGE

AND MUCH, MUCH MORE ...

Y NO **RISON**



The Abbey, Preston Road, Yeovil, Somerset BA20 2EN, UK

Fax: +44 (0) 1935 426 926

www.mdmpublishing.com

MEMBERSHIP



Up-To-Date? It's Up to You!

NFPA® membership is indispensable for more than 81,000 professionals worldwide. What about you? It's an easy decision for anyone involved with protecting people and property, because NFPA keeps members on top of breakthroughs, research, and technology...and in control of their careers. **Join now and SAVE 10%** on NFPA codes, products, and seminars, while **you stay up-to-date** with:

- **NFPA Journal®**, the award-winning bimonthly membership magazine loaded with articles, codes and standards information, investigations, case studies, and reports
- Answers to your code questions from NFPA's experienced fire protection specialists
- Online issues of **NFPA News** for codes and standards activities, and **NFPA Update** for training opportunities and events
- FREE membership in any of 16 industry-specific sections including Fire Service; Building Fire Safety Systems; Health Care; Electrical; and Architects, Engineers, and Building Officials
- The latest **NFPA Journal Buyers' Guide**—your bonus gift valued at \$40

Gain a decided advantage on the job. Join NFPA today!

Become part of the world's largest organization for fire, electrical, and building safety professionals and stay up-to-date for only \$150 annual dues—satisfaction guaranteed.

**To join call 1-617-770-3000, or visit
nfpacatalog.org.**



Foreword

2009 NFPA Conference & Expo

By Olga Caledonia

Executive Director
International
Operations, NFPA

More than 5,000 fire, life safety, electrical, and security professionals will convene in Chicago the second week of June for the 2009 NFPA Conference & Expo. Each year, we at NFPA do our best to create an annual program that will meet the needs of fire protection and life safety professionals around the world.

Building on the success from last year's convention and feedback from attendees, we are offering an incomparable educational event featuring 130 education sessions, including dozens of case studies, test results, and code updates; 21 preconference seminars and the Expo with more than 300 exhibitors!

New for 2009 and of special interest to our international audience is the *Behind the Scenes* Fire Protection Tours to Fermi National Labs and Underwriters Laboratories. You will be able to witness first-hand the unique fire protection challenges of the Department of Energy Fermi National Accelerator Laboratory. Fire protection engineers must design fire protection systems for one-of-a-kind scientific facilities, such as complex particle beam experiments and underground accelerators. The tour will begin with a presentation of fire protection and a brief overview of the physics research that takes place at Fermilab. You will visit several detector buildings, the main control room, and Fermilab's remote operations center for the Large Hadron Collider at CERN, in Switzerland.

In addition, you can also choose to tour the Underwriters Laboratories Northbrook, corporate campus. You will be able to witness and monitor a large-scale fire test involving a warehouse rack configuration system within UL's state-of-the-art fire safety engineering testing laboratory. You can also appreciate how various building materials, building content, fire alarm and sprinkler systems are tested and certified to applicable safety regulations. You will be able to tour UL's one-of-a-kind Traveling Safety Exhibit, a unique

mobile safety vehicle designed to promote safety awareness. All of this with a grand finale of a lively and informative presentation, by UL fire safety engineers and regulatory staff, on applicable fire codes as they relate to NFPA 13, 20 and 72.

I also invite you to join us at a panel session which I have the privilege to moderate on *Adoption of NFPA Codes and Standards Internationally*. NFPA codes are used around the world and they are being increasingly adopted by different government bodies as the *de-facto* code. An expert panel will share their experiences in three regions, Latin America, Asia and the Middle East. This session will enable you to better understand NFPA's international outreach and work to advance the use and adoption of codes and standards throughout different regions.

Please take a look at the online conference program on our home page www.nfpa.org/conference. I know you will be impressed with the offerings, both educational and personal, as you get to walk around the city of Chicago – a premier location for world class attractions. We are working with various delegations from China, Thailand and Korea that are already making their travel arrangements. International attendance to our annual convention has grown steadily during the last decade. It is very rewarding to walk the Convention Center hallways and exhibit floors listening to so many different languages! I know that NFPA is making a difference in so many countries and feel blessed to be part of such a worldwide contribution to life safety.

ONLY FIRETRACE IS FIRETRACE

OTHER TUBE-BASED SYSTEMS
CLAIM TO BE LIKE FIRETRACE.
THEY ARE NOT.



**INSIST ON GENUINE
FIRETRACE SYSTEMS
FOR PROVEN FIRE
SUPPRESSION.**

+ Only FIRETRACE INTERNATIONAL manufactured Systems offer extensively tested Firetrace branded solutions with listings and approvals[†] from CE, FM, UL, ULC and more than 25 other international agencies.

+ Only FIRETRACE INTERNATIONAL has 20 years of experience with more than 65,000 systems protecting equipment worldwide

+ Only Genuine FIRETRACE SYSTEMS have the tested and proven reliability you and your customers require

Never compromise your reputation by using impostor, untested and unapproved systems – be sure you are using genuine Firetrace.

FIRETRACE®
AUTOMATIC FIRE SUPPRESSION SYSTEMS

Call +44 (0) 1293 780390 (Europe, Middle East, Africa)
or +1 480 607 1218 (US and elsewhere) or e-mail info@firetrace.com
to see why Firetrace is the right solution for your fire protection needs.

www.firetrace.com
www.firetrace.eu



Firetrace® is a registered trademark of Firetrace USA, LLC / Firetrace Ltd. All unauthorized uses of the Firetrace trademark shall be prosecuted to the fullest extent permitted by the law.

* The Firetrex, FireDeTec, and Firetec brands are the property of their respective owners, and are not the property of Firetrace.

[†] Listings and Approvals vary by system and agent.

SKUM™ protection for high risk environments

Providing the right combination of firefighting agent and delivery system has led to the Tyco SKUM™ brand being recognised globally as the industry's leading provider of dependable and efficient firefighting solutions for high value, high risk petrochemical, aviation, marine and power plant applications.

SKUM designs and manufactures sophisticated foam-based extinguishing systems and equipment to safeguard installations where a fire has the potential to have catastrophic economic, environmental or life-threatening consequences. In addition to developing innovative solutions, such as the SKUM HOTFOAM™ high-expansion foam system that is designed for use in enclosed spaces, the brand is also at the leading edge when it comes to foam delivery systems and engineering.

The SKUM brand's sophisticated fixed or mobile delivery systems do away with the need for the massive and urgent deployment of equipment and firefighting personnel. They also ensure that a fire is responded to in the shortest possible time,



Holmatro opens representative office in China



From left to right: Mr Xiao (China Seismological Bureau), Mr Pourchez (Dutch Consulate), Mr Meijer (Holmatro CEO and Chairman), Mr Evers (Holmatro Country Manager China)

Company information:

Holmatro China, Unit 14/D – 9 Joy Tower, 9 Zhen Ning Road, Shanghai 200050 P.R.C.
Tel: + 86 21 5238 7330 Fax: + 86 21 5238 7320 Website: www.holmatro-china.com

HOLMATRO RESCUE EQUIPMENT has officially opened its first representative office in Shanghai, China on 29 September 2008. This office will play a supporting role to the dealers and end users and will meet the increasing demand for high quality rescue equipment in this country. Floris Evers, country manager China, is happy with this new development: "this new representative office forms a solid foundation for new developments of Holmatro in the Chinese market".

so reducing the potential for the fire to develop into a major incident. SKUM was first to develop a semi-subsurface system for storage tank protection and this, and other SKUM systems, are today in use throughout the world providing around-the-clock protection for oil, LNG and other flammable liquid storage tanks and bunds.

The SKUM offering also includes an array of fixed foam generators and fixed monitors that can cost-effectively protect storage tanks and associated spill or ground fires. The current line-up also encompasses portable monitors and trailers that can be quickly and easily deployed. These are used extensively by municipal and industrial fire brigades and professional firefighters.

SKUM monitors are noted for such characteristics as long throw capability and fast knock down. Many, such as the latest FJM-EL ranges of electric remote control of monitors, incorporate features not readily found on other systems on the market, and use materials that are more resistant to the corrosion found in marine or harsh industrial environments. Several of the SKUM water or foam monitors are less than half the weight of some competitors' comparable models.

Further details on SKUM – Skum is the Swedish word for foam, which is pronounced "skoom" – solutions and expertise can be found at www.skum.com

Fireray Protects Indian Cinemas

Beam Detectors for Bollywood

28 of British company FIRE FIGHTING ENTERPRISES' Fireray reflective beam detectors have been installed across 8 Adlabs Films cinema complexes in India, by regional distributor Code Red Electronics & Security Systems. A further 7 Adlabs cinema projects are expected to follow suit, requiring another 30 detectors.

Adlabs Films Ltd. is India's fastest growing film entertainment company, and runs the largest Indian cinema chain – BIG Cinemas, with nearly 400 screens across the subcontinent, Malaysia and the U.S. In the year to come, more than 30 million people are expected to watch a film in one of the company's theatres, and it is naturally of vital importance to safely protect them in the event of a fire. To that end, 8 F100R and 20 F50R Fireray units are now protecting the Lakshmi, Alankar, Ganesh, KS, Nagalaskhmi, Keerthana Ramana, Prakash Kailash and Majesty Theatres, all in the south-eastern region of Tamilnadu.

FFE's reflective beam products were selected for these installations due to their proven reliability, easy maintenance and installation, and exceptional coverage range in large indoor areas – the wide, high ceilings of the cinema screens would take many, many point detectors to protect effectively. One Fireray F100R can safely detect smoke over an area of 1500m² – 100m x 15m, 7.5m laterally either side of the beam; it would take at least 14 point detectors to cover that same space.

For more information, please contact:

Fire Fighting Enterprises Ltd

Email: sales@ffeuk.com

Website: www.ffeuk.com

Distributor Contact:

Code Red Electronics & Security Systems

Pvt. Ltd.

Email: info@coderedsys.com

Website: www.coderedsys.com



Wormald fire protection solutions

SCBA & Compression

Wormald, Australasia's leading distributor of Scott® and Sabre® Self Contained Breathing Apparatus (SCBA) products, will soon introduce a new Scott® Advanced Carrying System (ACS).

Developed following extensive research, the Scott® ACS is a major breakthrough in SCBA carrying systems offering a lightweight solution with exceptional flexibility, easy decontamination and high performance pneumatics. A range of facemasks, cylinders and valve styles allows the system to be tailored to individual requirements.

Once released, Wormald anticipates the new ACS will become the industry standard carrier for SCBA in the marine, industrial and fire environments.

Wormald also offers a range of Scott® breathing air compressors, including the Hush Air, Simple Air and RevolveAir systems.

The two stationary air compressor systems – Hush Air and Simple Air – offer a complete compressor assembly with maximum air flow and performance.

The RevolveAir system consists of a charge station which allows two Breathing Air Cylinders (BACs) to be simultaneously charged within the projective chamber, while two further BACs are exchanged outside of the chamber.

Fire Suppression

Wormald's innovative Inergen® gas fire suppression system is ideal for mission critical environments featuring expensive, high-tech equipment (for example, plant and data rooms) where a fire suppressant is required to not only protect equipment from fire, but also prevent any damage from the fire suppressant itself. Whereas a wet suppressant could not fulfil this requirement, Inergen®'s natural gas composition is designed to minimise damage caused to the equipment.

For restaurants which require a fire suppressant system designed to combat the high temperatures reached in a commercial kitchen, Wormald provides two systems aimed at two different situations – the Ansul® PIRANHA™ and the Ansul® R-102™.

The PIRANHA™ system addresses the increasing use of higher temperature cooking oils and more efficient, slow cooking appliances, whereas the R-102™ system is specifically designed to suppress fires occurring in cooking appliances and ductwork. In the event of a fire, both systems discharge a wet chemical agent that forms a vapour sealing blanket for rapid flame knockdown. To further cool hot surfaces, the PIRANHA™ system takes the additional step of then discharging water.

For further information, visit www.wormald.com.au or call +61 2 9947 7550

New CBRN Respirator



The SE40 positive-pressure demand PAPR (powered air-purifying respirator) is approved according to the NIOSH CBRN-PAPR standard.

Specially designed for first responders, SE40 provides protection against a wide variety of chemical, biological, radiological and nuclear warfare agents.

The SE40 does not function like a conventional continuous-flow PAPR. It operates on the demand principle, much like a breathing apparatus. The air supply opens on inhalation and closes on exhalation. In short, air only goes through the filters when the wearer breathes in. This greatly extends the life of both canisters and battery, with significant savings as a result. Running costs are greatly reduced, as the filters have been found to last approximately twice as long in the SE40 as in a continuous-flow respirator.

The fan unit can maintain positive pressure at hard work without 'dipping' into negative pressure and consequent inward leakage, as can often be the case in conventional PAPRs.

SE40 offers many essential features for the responder, such as voice communication, high mobility, several hours' operation time, de-misting, self-testing, audible and visible alarms and much more.

The respirator can be used with a variety of pressurized protective suits, including a military-grade encapsulated model that has been tested for warfare agents.

Positive pressure

The SE40 is capable of delivering air flows over 400 litres/minute, which means that positive pressure is maintained in the face piece even at heavy work. The microprocessor controlled fan unit continuously monitors the user's breathing pattern, measures the pressure in the mask, alerts the user to any dips in the internal pressure below the ambient pressure, monitors and warns of low battery power and canister capacity, records critical operational data, and logs a data trail that can be downloaded to a personal computer.

The respirator checks its own operation at all times, and automatically performs a self-test every time it is switched on. Through a pressure sensor in the mask, the SE40 adjusts its fan speed for optimum air delivery, and no further adjustments are needed.

Single button operation

Switch on the fan unit and forget about it. The SE40 is designed with simplicity in mind. A clear display panel on the fan unit shows normal operation, and a status indicator is always in the user's field of vision. Both visual and audible alarms will alert the user to any event that requires attention.

The unit is powered by a high-capacity battery which will provide trouble-free operation for up to 6 hours. For particularly demanding situations, a dual battery configuration is available, effectively doubling the operating time of the respirator.

CBRN canisters

The filter canisters have been tested to NIOSH stringent standards, and have been subjected to a



wide range of industrial chemicals and CBRN warfare compounds such as sarin, phosgene, mustard gas, nerve gas, cyanogen and many more, including hazardous biological materials.

The 125 mm diameter of the light-weight filters leads to extremely low pressure drop over the canister, and the large volume of filtering media means great adsorption capacity and long service life.

The fan unit itself is completely sealed with EPDM gaskets and covers, and passes live agent tests with no penetration.

Integrated protective suits

The SE40 can be fully integrated with a military-grade encapsulated suit, chemical-resistant and impervious to warfare agents. Various other suits are also available, such as dust and splash suits and heavy-duty PVC fully encapsulated models.

Encapsulated suits can be pressurized internally by the fan unit.

Voice communication

A powerful clip-on mini-loudspeaker is connected to a microphone mounted in the face piece, giving loud and clear speech amplification. Designed for easy adjustment even with thick gloves, the volume button can also be used to switch the SE40 on, and to de-mist the visor with a boost of air.

Accessories and storage

Optional accessories span from spectacle inserts and welding shields to head harnesses and battery management systems. The SE40 is supplied in a rugged military-style bag. The stackable bag itself meets NIOSH environmental tests, simulating 9 years in the boot of a car under extreme temperatures, followed by a live agent test.

APF


For more information call:
The S.E.A. Group on
+61 2 9910 7500,
email sea.australia@theseagroup.com or visit
www.theseagroup.com

International Firex Preview

INTERNATIONAL FIREX 2009, the fire industry's leading event, is taking place from 11-14 May at the NEC Birmingham, UK.

Hosted in partnership with the Fire Industry Association (FIA), International Firex returns this year with more innovative features, educational content and industry renowned exhibitors than ever before.

LPCB Red Book Pavilion

The Loss Prevention Certification Board (LPCB) Red Book Pavilion is a new feature for 2009 and will promote the importance of third party approved products and services in the fire protection sector.

There will also be a comprehensive educational seminar programme with industry experts from the LPCB leading the sessions. Dedicated staff will be on hand to answer any queries.



FIA Learning Zone

The Fire Industry Association will once again be hosting a series of seminars and presentations aimed at fire alarm systems designers, installers

and end users, with particular emphasis on hotels, bed & breakfasts, residential landlords and care homes. These free-of-charge educational sessions will also provide these end users with updates on the impact of the changes in fire safety legislation and provide guidance on how to become fully compliant. Seminar topics will include: "Landlords – Don't get burnt by fire safety legislation, hosted by LACORs", "Carehomes – know your fire safety responsibilities", "Installers – beat the recession, we'll show you how" and "Do you have paying guests? Don't get burnt by fire safety legislation".

Industry Leaders Announce New CAFS Innovation



Waterous Worldwide and Elkhart Brass Collaborate on the Revolutionary ICS

WATEROUS WORLDWIDE, in partnership with Elkhart Brass Mfg. Co. Inc., is proud to announce the new Intelligent CAF Selector (ICS) for use with Waterous CAFSystems equipped with Unibody electric valves. The ICS discharge valve controller elevates CAFS operations and functionality to a whole new level.

With the ICS, pump operators have a simple, single control point for the discharge – providing "one touch" CAFS activation. Both valve position and pressure are clearly displayed on the controller. A "CAF ON" button activates the CAF discharge air valve and precisely gates the water valve to a preset position. A second button, "CAF SELECT," toggles between three user selectable air-foam solution ratios with clear language description of the selected mode.

The ICS was designed specifically for Waterous CAFSystems used in conjunction with Unibody electric valves. Geary Roberts, President – Waterous Arizona Operations, noted, "Waterous is always committed to creating products which maximize operational efficiencies for fire scene personnel. Since Elkhart shares our customer-oriented focus, working together on the ICS presented the ideal opportunity for us to combine our strengths into a unique CAFS product."

"In nearly every situation in which multiple CAF discharges are employed, the ability to control the air-to-solution ratio independently at each discharge is mandatory for effective foam operations," stated Don Sjolín, Vice President of Marketing and Strategic Development for Elkhart Brass. "With an ICS-equipped Waterous CAFSystem, producing CAF is extremely simple yet the operator retains the flexibility to produce the right foam at each discharge."

For more information, please contact:
Waterous Company. Tel: +1 651 450 5081 Website: www.waterousco.com

Exhibition

Once again, International Firex will showcase the very best manufacturers and distributors of the fire protection, fire prevention and fire fighting products and services. With more than 100 industry leading exhibitors, including Advanced Electronics, Apollo Fire Detectors, Cooper Fulleon, Fireco, Hochiki Europe, Kentec and Ventcroft, already confirming their presence, this exhibition is a must for all fire industry professionals.

Fire Excellence Awards Dinner

Taking place on Tuesday (12th May) evening, the Fire Excellence Awards Dinner is an opportunity for manufacturers and guests to celebrate the very best in product innovation, export growth system design, fire safety management and outstanding action. With more than 700 industry professionals in attendance, this event promises to provide unrivalled networking opportunities.

Gerry Dunphy, Event Manager of International Firex, comments: "The addition of the LPCB Pavilion to our already established features will give this year's International Firex an extra dimension. With more than 100 industry renowned companies exhibiting and an expanded seminar programme, we believe this event will address all aspects of the fire protection industry and is therefore a must for all fire industry professionals. We are very much looking forward to the event in May."

International Firex 2009 will be co-located with Fire & Rescue, security event IFSEC, Safety & Health Expo, and The Facilities Show, all taking place from 11/12-14 May 2009 at the NEC Birmingham, UK.

For more information please visit www.internationalfirex.co.uk. Companies interested in exhibiting should contact Peter Poole on +44 (0) 20 7921 8342 or email peter.poole@ubm.com

Minimax

Experience,
competence
and
innovation in
the fire
protection
always in
ordinary of the customer



Minimax vouches with its experience and competence of more than 100 years in fire protection for:

- high quality fire prevention products which are continuously refined and optimized according actual state of technology.
- customized needs and customized applications as well as co-ordinated services like fire protection consulting and fire brigade inspection, maintenance and service plan plus training workshop.

In combination with products, systems and services Minimax is the "One-Stop-Shop" in fire protection. As an unique provider of all-in solutions combines our wide range product and service portfolio all necessary steps for a custom-made fire protection solution.

Summarised: With Minimax Fire Protection is the customer served in an optimal way – in consideration of his economic interests.

The result of long lasting research and development study are sophisticated, innovated products

which fulfil high-quality "Made in Germany" demands and assure at proper use a longevity of service. Permanent quality assurance and improvement will take care that it keep being like that!

The fire extinguisher series of Minimax are perfectly concerted.

As a result of their modular engineered design, we achieve a high efficiency during the production, the maintenance and the spare part logistics – efficiency that directly are advantages of our customers.

By area wide presence of staff and by close collaboration between fire protection consultants, engineers and the mobile fire protection centres, Minimax is in the truest sense of the word "customer-oriented" including high delivery and service availability.

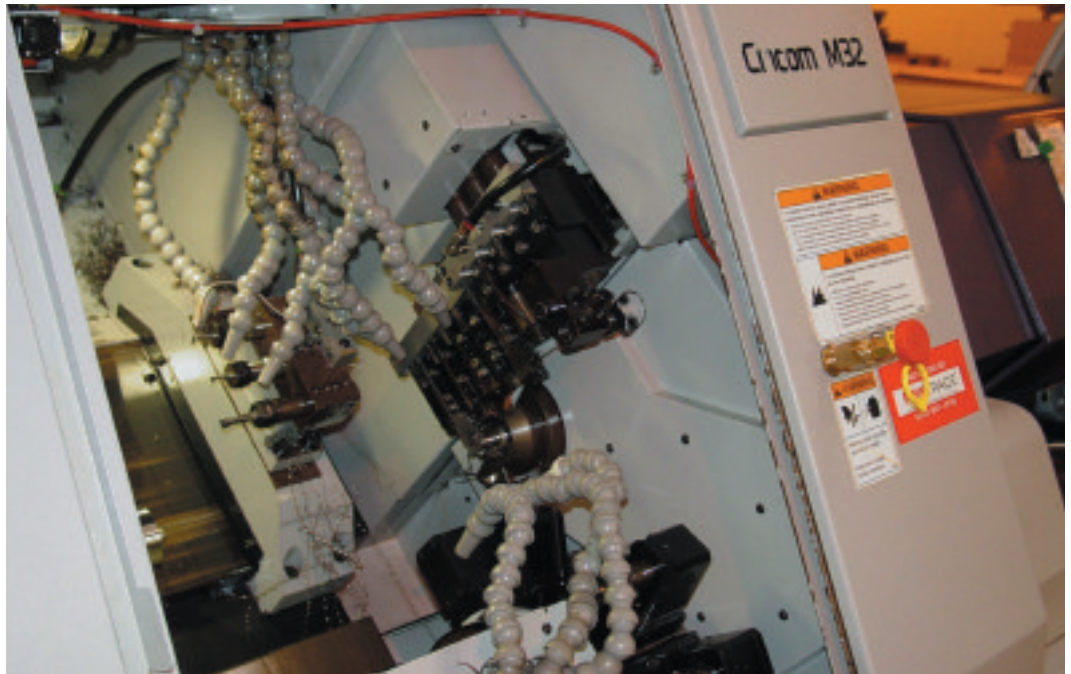
Minimax is as a full-line provider the best fire protection partner for customized needs. **APF**



Head Office Contact Details:
Minimax Mobile Services
GmbH & Co. KG
Export Department
Minimaxstr. 1
72574 Bad Urach/Germany
Tel: 0049-7125-154-133
Fax: 0049-7125-154-166
Email:
exportmobile@minimax.de



Extinguishing the critical Assets



There has always been something of a lingering awareness that businesses need to ensure that they can continue to operate in the aftermath of a major fire. However, it is only comparatively recently that companies have shifted away from devoting their entire attention on today's issues and challenges towards formalising their business continuity or disaster recovery plans to ensure the organisation's future prosperity.

Much of the early thought was focused on how to continue trading or providing a service following a fire, rather than preventing the incident occurring in the first place. Attention was also directed at what might be described as "the big picture", which led – commendably – to the installation of ever more sophisticated fire alarm and detection systems and firefighting installations aimed at safeguarding the entire facility. Those organisations that have fully embraced the concept of business continuity planning have though appreciated that, in reality, business survival is frequently dependant upon the continued operation of certain core business-critical assets, and that preventing their damage or destruction is what will make the difference between the ability to continue trading and the untimely demise of the company.

But, what are these "core business-critical assets"? This, of course, varies from industry to industry, and they are to be found particularly throughout the manufacturing sector and across the mass transit infrastructure in airports and rail terminals. Typically they include electrical control cabinets upon which an entire plant may depend, CNC and EDM (Electrical Discharge Machining) equipment that may feed entire production lines,

and IT server installations. They also include dust and mist extraction facilities, fume hoods and cabinets, and engine test cells. The one factor that is common to them all – or at least the vast majority – is that these assets are enclosed in some form of housing; hence the term that is most commonly used to describe them, "micro-environments".

How has this changed the thinking about fire suppression systems? In essence, it has made businesses realise that key assets need to be given adequate dedicated fire protection and that the response time between detection and extinguishing must be as close as possible to instantaneous. This has exposed the flaw in the thinking that conventional facility-wide fire detection and alarm or firefighting systems are up to the task.

The "Micro-Environment" Fire Safety Challenge

The challenge for these facility-wide systems is that, even with the most sophisticated and integrated installations, by the time a ceiling-mounted smoke, heat or flame sensor or a beam detector has been activated by a fire in, for example, an electrical control cabinet, it is all but certain to be extensively damaged, if not destroyed. By their

FIRETRACE is available only via Firetrace International's global network of authorised distributors. These trading partners are skilled in hazard analysis, agent and system selection, installation, commissioning and support. They also use only genuine FIRETRACE components. Details of these authorised distributors are available by contacting the FIRETRACE EMEA head office in the UK on +44 (0) 1293 780390, or from Firetrace International headquarters in Scottsdale, Arizona on +1 480 607 1218. The company's website is at www.firetrace.com

Risk to Business-

enclosed nature, micro environments are isolated from the facility's main fire detection and alarm installation and firefighting facilities.

Again using the example of a cabinet containing electrical equipment, a fire can break out for several reasons including cable fatigue, incorrect installation, overloaded circuits, equipment failure or any number of environmental factors. The only way to resolve the problem is to provide protection precisely where it is needed – inside the cabinet or micro-environment. The same applies to CNC machines, where a drop in oil level can easily result in a fire as the coolant oil and oil vapour can, in an instant, escalate a single spark into a major fire. Excessive heat can be generated by improper programming of the machine or a failed tool, causing a flash-fire as the cooling oil ignites.

Extinguishant options

Providing dedicated fire protection to these environments calls for a wide choice of extinguishing agents, as the threat posed by each hazard can be significantly different. The solution therefore has to be sufficiently versatile in terms of suppression agent that it can be tailored to the precise fire risk. This, by necessity, has to include the latest clean agents such as 3M™ Novec™ 1230 Fire Suppression Fluid and DuPont™ FM-200®, both of which are effective in a wide range of applications, and particularly for protecting sensitive electrical equipment.

Other options include ABC dry chemical agents, BC dry chemical agents and D dry chemical agents for – as each prefix letter indicates – Class A fires that involve freely burning materials such as wood and paper; Class B fires that involve petrol, diesel and other flammable liquids; Class C fires that involve flammable gases; and Class D fires that involve flammable metals. CO₂ (carbon dioxide) is another widely used extinguishant, although care has to be taken to ensure that it is not used in applications where there is a risk of thermal shock to delicate equipment. AFFF (Aqueous Film Forming Foam) three-percent concentrate is a further option that needs to be in the arsenal if a truly comprehensive solutions offering is being made.

Fast and effective response

All of these extinguishing agents are battle-tested. However, they need fast delivery that is prompted by fast detection if the enclosure is to suffer minimum damage. And the installation has to be unerringly reliable.

FIRETRACE® is an automatic fire suppression system that was developed specifically for these applications. It has proven to be so successful that, over the years, the system has attracted more than its fair share of imitators and the FIRETRACE name has been blatantly pirated to describe inferior systems. However it is the only system of its type that can claim to be fully internationally accredited, that has more than 75,000 successful installations world-wide, and is alone in using components that can be relied upon to deliver the specified performance.



ISO 9001-approved Firetrace International's FIRETRACE is a "self-seeking", stand-alone solution that is entirely self-contained and does not require an external power source. The system consists of a cylinder that contains the chosen extinguishing agent, which is attached to proprietary Firetrace Detection Tubing via a custom-engineered valve. It is this small-bore polymer tubing that distinguishes FIRETRACE from other systems, being a linear pneumatic heat and flame detector that was painstakingly developed to consistently deliver the desired temperature-sensitive detection and delivery characteristics.

It detects along the entire length of the tube. So the FIRETRACE tubing immediately detects a fire at its source, ruptures and automatically releases the suppression agent, extinguishing the fire precisely where it starts and before it has had time to take hold.

"The reliability of this rupturing at the right time, place and temperature is the real point of difference between the FIRETRACE system and others on the market," said Nick Grant, EMEA General Manager of Firetrace International. "A great deal of development work went into genuine Firetrace Detection Tubing and its performance has not been replicated, which is why the system has been certified by UL (Underwriters Laboratories), FM (Factory Mutual) and NFPA (National Fire Protection Association)."

There are two FIRETRACE systems from which to choose. The Firetrace Direct System utilises the Firetrace Detection Tubing as both the detection device and the suppressant delivery system, whereas the Firetrace Indirect System uses the FIRETRACE tube as a detection and system activation device, but not for the agent discharge. The rupturing of the tube results in a drop of pressure causing the indirect valve to activate. This diverts flow from the detection tube and the agent is discharged from the cylinder through diffuser nozzles, flooding the entire enclosure.

APF

Foam Concentrates and Foam Systems for all applications



DAFO FOMTEC AB P.O Box 683 SE-135 26 Tyresö Sweden

Phone: +46 8 506 405 66 Fax: +46 8 506 405 29
E-mail: info@fomtec.com Web: www.fomtec.com



Evaluating Foam Proportioning Systems With Confidence

Essential Considerations for Selecting the Right Foam Proportioner

By Geary Roberts

President, Arizona operations, Waterous Company

You've done the research. You're convinced your department is ready to embrace foam as part of your daily firefighting operations. The right foam management system is a key ingredient to success, but how do you select a foam system that's right for you and your department?

There's no reason to feel frustrated or overwhelmed when purchasing the right foam proportioning system. By taking a look at the workings of your department and researching the functional aspects of available systems, you'll be able to purchase with confidence, and implement the right foam system that suits your department's needs.

Know your department. Evaluate your needs

Identifying the types of fires you'll fight using your new foam proportioning system is essential, and every department evaluating these types of systems must consider the primary mission or purpose of the new apparatus to help determine the specific system requirements later on.

Once the purpose is determined, departments must then consider the local fire problems and identify potential target hazards in the response area. Identifying the types of fire suppression situations that can arise will help distinguish the uses required of the foam proportioning system.



Ensure easy operations

Ultimately, integrating new equipment into your department should be seamless. Therefore, the foam proportioning system you purchase should be specified and installed for optimum operator simplicity.

Activating the foam system when the pump is engaged is one functional element that can ensure simple operations. Automatic foam system activation reduces the number of steps the pump operator needs to take as well as the amount of time required to transport foam solution to the nozzle.

Use the right foam for the job

Electronic direct injection foam systems are separated into two groups – those that are designed to inject Class A foam only and those that are designed to inject both Class A and Class B foam concentrates.

A significant difference exists between these two types of foams. Class B foam concentrates are typically more viscous and are flowed in higher ratios than Class A foam concentrates. Therefore, Class B operations require a proportioner capable of pumping the proper volume of these viscous concentrates.

Along with Class A vs. Class B foam operational considerations, your department must also evaluate wildland vs. interface vs. structural fires. Each of these different fire problems necessitate varying foam capabilities, and the foam system you select must be suitable to fit those needs. For example, structural firefighting requires higher water flow capabilities as compared to wildland firefighting; Class B foam operations require higher foam concentrate volume capabilities than Class A foam operations.

When using Class B foam for example, the capacity of the foam proportioner must be considered due to the higher percentage requirements of 3% and 6% concentrates, as the capacity will ultimately limit the total foam solution flow.

When researching the appropriate foam proportioning system, fire departments should make full use of the system manufacturer. Factory representatives have the experience and

The International FIRE & EMERGENCY TRAINING LEADER




TRAIN • SERVE • RESPOND

TEEX trains emergency response personnel from more than 45 countries each year. Each course can be tailored to meet your exact needs in a variety of areas.

- Municipal / Industrial Firefighting
- Emergency Medical Service
- Hazardous Materials Response
- Search & Rescue / USAR
- Aircraft Rescue & Firefighting
- Fire & EMS Leadership
- Fire Officer / Instructor
- Marine - Shipboard Firefighting
- Oil Spill Response
- Weapons of Mass Destruction
- Emergency Management / NIMS
- Incident Command
- LNG Emergency Response
- Assessment / Technical Assistance

Schedule these or any of our 130+ courses today.
www.teex.org/fire • 1.866.878.8900

TEXAS ENGINEERING EXTENSION SERVICE
 A Member of The Texas A&M University System
 3611 Taylor • College Station, TX 77843-7696



knowledge necessary to help you determine the correct capacity and configuration of the complete foam system, and are valuable resources during the decision-making process.

Never run the tank dry. Know your foam supply needs

The last thing a department wants to do is run out of foam during an incident. Evaluating and determining the right amount of foam to carry on your engine is essential.

When selecting the appropriate storage capacity for the foam cell, keep in mind that flowing Class A with the foam proportioner set at .5% water flow, delivered at 200 GPM, will use approximately one gallon of foam per minute.

A common mistake made by many departments is specifying a higher GPM foam proportioner than what is required by their fire problems. For example, a department may purchase a 10-12 GPM foam proportioner and only specify a 20- 50-gallon foam tank. This discrepancy indicates the department could either benefit from a smaller and cost-effective foam proportioner or a much larger foam tank.

Understand accuracy and reliability

The correct water-to-foam ratio and the reliability of a system to consistently create that ratio with accuracy are important considerations when evaluating a potential proportioning system. The truest method for testing a foam system's accuracy is to dip a conductivity probe into the foam solution produced by the system.

Testing a foam system's accuracy using this method can be difficult, but many foam proportioning systems are available that automatically test for accuracy while operating in a flow state, such as conductivity-based systems.

Flow-based vs. conductivity-based. Know which system is best for you

Most foam proportioning systems are flow-based, which means the proportioner injects a determined amount of foam for an observed amount of water flowing through the proportioning unit. While this automated process eases operations,

For maximum operating performance and efficiency for conductivity-based systems, foam injection levels vary between Class A and Class B use.

the result is often an inaccurate mix of water and foam. When flowing foam with an incorrect water-to-foam ratio, departments often run the risk of wasting expensive foam concentrate or allowing insufficient concentrate into the fire stream.

In contrast to flow-based systems, conductivity-based systems have the capability of monitoring the water supply and foam solution, and adjusting for deficiencies to consistently achieve the proper water-to-foam ratio. As a result, this type of proportioning system can optimize foam production and prevent foam waste.

For maximum operating performance and efficiency for conductivity-based systems, foam injection levels vary between Class A and Class B use. In structural and wildland fire suppression situations, for example, Class A foam is normally injected at levels between .3% and 1%. Industrial firefighting incidents on the other hand, require Class B foam, which usually injects at 1%, 3%, or 6%.

Be aware of flow ratio limits and pump capacity

Departments must be aware of the limitations of any foam proportioner in terms of the rated GPM. Make sure to evaluate the overall GPM rating as it relates to the desired percentage of foam flow in conjunction with the GPM water flow used to make the foam solution.

For example, if a foam proportioner is rated with a 3 GPM pump and the department decides

**You can rely on
Dr Sthamer – Hamburg
For all your foam needs**

**FOAM
FIGHTS
FIRE**

Proven Reliability.

**24/7 Emergency Supplies
From Stock**

Synthetic Foams

- Moussol APS
- Moussol FF **NEW!**
- Sthamex AFFF
- Sthamex
- Sthamex class A

Protein Foams

- Fluor-Foamousse
- Foamousse FFFP
- Foamousse OMEGA
- Foamousse

Ready To Use Foams

- Fettex
- Mousseal-C
- Mousseal-CF
- Mousseal-ATC

Training Foams

24/7

**EMERGENCY
SUPPLIES**

+49 40 736 16 80

We offer a comprehensive range of high performance and environmentally friendly foams.



Dr. STHAMER HAMBURG

Head Office and Factory Hamburg
Liebigstrasse 5 · D-22113 Hamburg
Phone +49 40 736168-0
Telefax +49 40 736168-60
E-Mail: info@sthamer.com · www.sthamer.com

International Sales Contact
Mr. Jan Knappert
Phone +44 (0) 7795 101770
E-mail: jknappert@sthamer.com





to flow Class A foam solution at .5%, the maximum water flow the foam proportioner could support would be 600 GPM of water flow to make the appropriate foam solution. The same proportioner would support 300 GPM water flow at 1% of foam solution.

Identify the proper delivery system

Depending on the type of fire problems normally faced in your service area, a foam delivery system that offers dual selection between Class A and Class B foam may be beneficial to your department, especially if you fight fires using both types of foam on a regular basis.

Many foam delivery systems allow operators to toggle back and forth as needed by using a switch located on the operator's panel. When evaluating dual activation options, make sure the system you select provides zero cross contamination and provides a clean water flush of the foam concentrate pump and foam piping.

Above all, when evaluating foam delivery systems make sure to remember the safety of your firefighters. Always specify a foam tank refill system that can automatically maintain the foam tank levels and prevent firefighters from climbing to the top of the truck with foam concentrate containers.

Seek durable materials

Durability is an essential criterion for selecting the right foam proportioning system for your department. Make sure to pay attention to the materials used to manufacture the system such as the operator control panel, control buttons, waterway flowmeters, foam pump body and internal parts as well as other system components. The material used to manufacture these components often helps determine the overall durability of the system.

In order to cut costs, some foam system manufacturers utilize plastic components in their control panels, flowmeter paddlewheels and control switches. Plastic material is more cost-effective than stainless steel, but rubber or plastic components generally wear out faster and have to be replaced more frequently. Stainless steel hardware

on the other hand, wears out much slower, and is designed to withstand millions of cycles before requiring replacement.

Research after-market products and services

After-market products and services are important considerations to research thoroughly before purchasing a foam proportioning system. Always make sure to purchase after-market products or services based on the needs of your department.

Warranties provide peace-of-mind with your department and are normally included with the purchase of the system for a period of one year. Additional services packages and/or extended warranties may be purchased from the manufacturer.

Some manufacturers' proportioning systems feature instant, accurate tech support via a laptop-installed product-specific software, or use an Internet-based service system for troubleshooting, diagnostic testing and repair.

Additional accessories or after-market products offered by manufacturers include auto-fill tank systems. Auto-fill tank systems include a micro-controller device that identifies low tank levels and automatically refills the tanks without overflowing. These systems make it easier, safer, cleaner and quicker to refill the tank by utilizing a hose and pick-up tube that is connected to the operator's panel with a quick-coupler.

Specify operator education

The biggest mistake a department can make is implementing new equipment without proper instruction. Departments must specify firefighter education with the purchase of their equipment in order to ensure a smooth transition and firefighter buy-in to compressed air foam use.

When integrating and learning new apparatus, bad first experiences are hard to overcome and improper firefighting habits are hard to break, so it's best to start fresh with proper product orientation. Hands-on and theoretical education can make your new proportioning system easier to learn, and help alleviate any initial reluctance by personnel in accepting the new technology.

Normally, the manufacturer includes instruction when you purchase an entire compressed air foam system comprised of the pump, proportioner and delivery system. If education courses are included in the purchase of your system, make sure to discuss the specifics with the manufacturer to ensure you receive the experience is exactly what your department needs.

When researching education options from the manufacturer, make sure instruction will take place at your fire department. Also specify that a qualified instructor – who is both a firefighter and an experienced compressed air foam user – facilitate the courses so your firefighters learn from a person who teaches from experience.

Purchase time

If you're just beginning to research foam proportioning systems, you've now armed yourself with valuable knowledge on the available systems. Continuing to increase your understanding of foam proportioning systems and related compressed air foam technology ensures you'll evaluate and purchase the right proportioning system with complete confidence and authority.

APF

Geary Roberts has been active within the fire service industry for decades. After more than 15 years working as a career firefighter and captain in Glendale, Ariz., U.S., Roberts founded an equipment and fire apparatus dealership in 1989, and then went on to found Pneumax in 1993. When Pneumax was acquired by Waterous, the world-leader in compressed air foam systems in 2000, Roberts became president of the manufacturer's Arizona operations.



Bio-ex
Advanced Quality

Bio-Ex is a manufacturer of
**a complete range of synthetic & proteinic
fire-fighting foams**
Hi-Ex, AFFF, Alcohol Resistant, Class A and
Fluorine Free Foams (100% bio-degradable).
**Approved to
EN 1568**

BIO-EX S.A. - Z.I. La Petite Olivière - 69770 Montrottier - FRANCE
Tél. +33 (0)4.74.70.23.81 - Fax +33 (0)4.74.70.23.94 - export@bio-ex.fr

www.bio-ex.com

THE RIGHT GEAR FOR **FOAM**

FOAM CONCENTRATE PUMPS

- bodies in bronze or stainless steel
- integral relief valves
- choice of seals



- water turbine drives



ALBANY PUMPS

Tel: +44 (0) 1594 842275 Fax: +44 (0) 1594 842574

e-mail: sales@albany-pumps.co.uk www.albany-pumps.co.uk

Russwurm Ventilatoren

Made in Germany

*...when mobile, compact but powerful fans
are required.*

Experienced in strongest fire and rescue situations. Used in vehicles which have to be equipped for all incidents. For every duty the right drive. All versions are available with certified explosion-proofness. We offer a wide range of ATEX-certified fans for the zones 1, 2, 21 and 22 in axial and radial design.

If required, they can be customized to your needs.



Detailed informations and PDF-files
for downloads you can find at
www.ruwu.de or you simply call us.



ruwu ... and you have the air under control

Hochleistungs-Ventilatoren

Russwurm Ventilatoren GmbH | Ortsstrasse 25 | D-86405 Meitingen-Ostendorf

Phone: +49-8271-8175-0 | Fax: +49-8271-8175-40 | info@ruwu.de

Image: Martin Grant

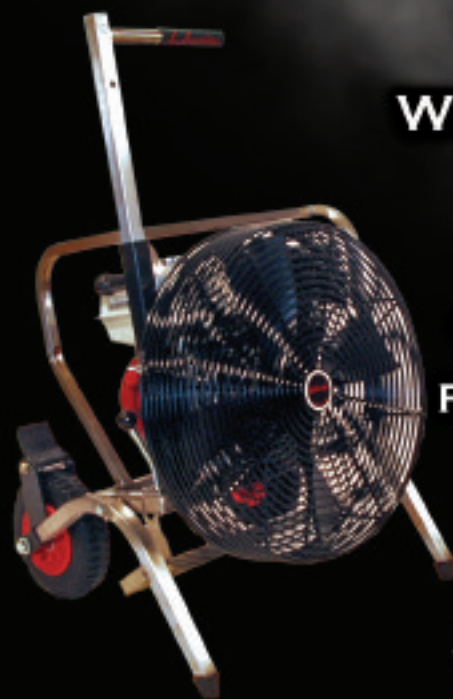
UNIFIRE

MANUFACTURERS OF HIGH PERFORMANCE EQUIPMENT



WHEN TIME MATTERS.
WHEN LIVES ARE AT STAKE.
WHEN SAFETY IS KEY.

CHOOSE THE BRAND
THE TOP TRAINING AND
RESCUE TEAMS CHOOSE.



UNIVENT BRAND SAWS ARE A DIVISION OF UNIFIRE

1-800-745-3282 • WWW.UNIFIREUSA.COM

Pic courtesy of Super Vacuum Manufacturing Co., Inc.



PPV Technology to Ventilate Large Structures

By Roger Weinmeister

Super Vacuum Manufacturing Co., Inc.

It may be clear by now that Positive Pressure Ventilation (PPV) is one of the most powerful tools in any emergency department's arsenal. Ventilation is essential not only for reducing property damage after the fire is extinguished, but even more importantly for improving life safety for both the firefighters and any victims of a blaze.

PPV is also very helpful in ventilation operations not involving fire, including Hazardous materials and terrorist actions. Until now PPV was mostly applicable in house or garage fires, but as fire fighters become familiarized with the technique and started seeing the advantages, they realized that PPV could be helpful in ventilating large structures, like warehouses, tunnels or high rise buildings. Especially in large structures smoke causing lack of oxygen, loss of direction, and heat are all critical factors contributing to the amount of casualties. PPV can help in reducing them.

For this need some manufacturers have developed large (>1 Meter in diameter) fans. A large, powerful ventilator is able to displace huge amounts of air. These large fans can be mounted

either on a trailer or on a dedicated fire truck. The fan is placed on a rotate-able head and able to take on the needed angle for optimum placement. By creating large volume of air moving at high speed, firefighters can better control the environment in large structures.

Using a fan to blow into a structure defies most sound firefighting theory. But it was found that the air did not have a significant effect on fire behavior. It is important that an exit point for the air must be opened prior to starting any PPV operation. It is also important in fire situations that hose lines are deployed simultaneously with or immediately after the airflow to the seat of the fire. Similar to a typhoon, oxygenated air is drawn in low and heated combustion products are

Pic courtesy of Super Vacuum Manufacturing Co., Inc.



expelled upward. The fan, if set right next to the seat of the fire would greatly increase combustion. But when air from the fan expands to fill the space, the wind speed is reduced. This causes the smoke and heat to be moved away from the fire source without significantly increasing the size of the fire.

When deploying a large fan, consider wind direction, and downstream safety prior to setting up the unit. Furthermore, always vent from the attack side, failure to coordinate the ventilation with fire attack can have serious, negative consequences. Wind plays a big role in how effective PPV technology is utilized. In general, PPV will be very effective in wind speeds up to 20 kph. In higher wind speeds, it is best to use the wind to your advantage. Just as wild land firefighting is not done from the downwind side and this is also true for large structure ventilation in high wind. As wind speed increases, it is best to make smaller exit openings or to move air at angles to the wind direction. It is physically impossible to overcome high natural wind speeds with a large fan.

In large fire structures like tunnels, casualties can be reduced if smoke inhalation and loss of direction can be eliminated. Smoke and heat

created in a tunnel are difficult to deal with, as they limit the possibility of reaching the seat of the fire, as they are billowing out of the tunnel. With a tool as large fans it is able to have enough capacity to displace so much air that smoke and heat can be solved, and making it relative easy to put water on the fire. The fresh air that is blown into the tunnel lowers the chance of smoke inhalation dramatically and lowering the temperature allows casualties to sustain longer. It also increases the sense of direction where fresh air is

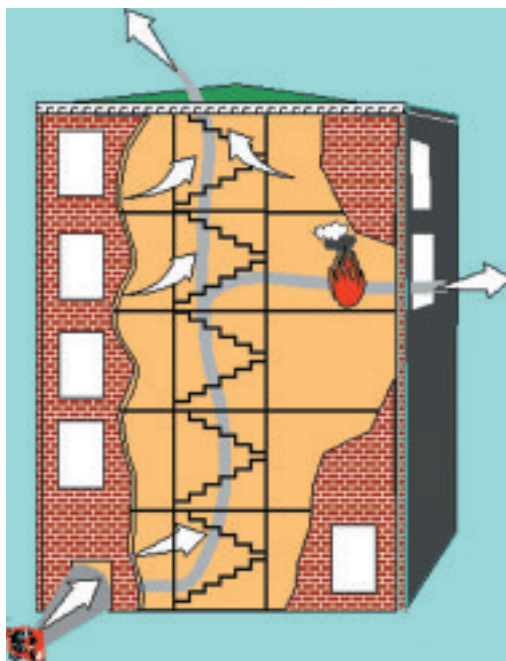
coming from, allowing self rescue of victims that are capable of moving. It is this ability to aid in self rescue that significantly increases the fire departments effectiveness in large scenarios. The effort and manpower required to search, locate, and remove victims is greatly reduced.

Large fans are also useful in high rise incidents. For high rise buildings the most important aspects is to maintain the conditions of stairwells, which is ideal application of PPV. Stairwells are the main arteries of high rise buildings. They are the means of egress for the occupants and the means of ingress for the rescue personnel. Many buildings have pressurized stairwells built into them. The use of PPV can assist in this pressurization or perform the task for systems that are not functioning due to fire conditions. While ordinary PPV fans are useful in buildings up to 3 stories, large fans are useful up past 30 stories.

The number and type of building that can be successfully ventilated with large fans is very high in most areas. Large retail outlets and warehouses are usually protected with good sprinkler systems that minimize heavy fire conditions. But many of us have been on responses to these buildings where the fire was effectively contained by the sprinkler system, but the building was filled with smoke. These cold smoke (smoke that is not thermally stratified) conditions can be very difficult to ventilate without large fans. The use of large fans can allow business owners to quickly get back to their business, while firefighters can be freed for the next incident.

The application of a large ventilator is not limited to fires. In situations where a building is contaminated due to hazardous material spills or terrorist actions, PPV can be used to blow fresh air into a building. This type of dilution is the most effective method to make the building safe for use. Large fans with water misting systems can be effective in certain situations where it is safer for the responders and public to change the contamination from airborne to waterborne. Hazardous materials situations are most always difficult and time consuming, the ability to use a large fan can make them easier and quicker to mitigate.

When specifying a large fan, it is wise to consult with different people within your department. Many times the people on the High Rise Building team are not the same as the people on the Haz-Mat team. However both groups could benefit from being able to dispatch a large ventilation unit



Pic courtesy of Super Vacuum Manufacturing Co., Inc.

to their scene. In some mid-sized departments, it may work best to have a unit that is shared between a number of departments within a mutual response zone. A large ventilation unit is like an aerial ladder; it is not something used or needed every day. But when the situation arises, it is the only truly effective way to handle the rescue.

Once you have decided what your department needs are regarding the unit, it is time to specify what you would like to purchase. These large fans can be mounted either on a trailer, as part of a multi-purpose vehicle or on a dedicated fire truck. The fan can be placed on a rotate-able head and able to take on the needed angle for optimum placement. These units are usually powered by petrol, diesel or hydraulic motors in sizes ranging from 30 Hp, up to 500 Hp. Petrol units have the advantage of being lighter in weight and therefore easier to lift and position. The disadvantage of petrol units is they require a separate fuel source. Diesel units have the advantage of being able to use the vehicle fuel source and common operation of most large fire vehicles. Diesel unit are generally of a higher weight and cost than petrol units. This higher weight limits the ability to lift and position diesel units and prevents them being mounted behind the rear axel on most fire vehicles. Hydraulic units are the lightest of the three options and can operate in any orientation (from straight down, to straight up). They also can operate via the power-take-off (PTO) from the vehicle engine and fuel system. The disadvantage is efficiency (engine to hydraulic motor is usually 50-60% efficient) and most PTO's have a limit of 50 Hp.

Once a proper unit has been specified it is time to train the trainers so they can instruct the firefighters. There are many times, with changing personnel and priorities that departments do not fully utilizes the resources they have purchased. While the basic concept of a fan moving air is well understood, the knowledge of how to successfully use a large fan to save victims in a variety of situations is not as easy to understand. There are many good sources for information. A very good place to start is the NIST (National Institute of Standards and Technology) site at www.fire.gov/PPV/index.htm. The NIST team, lead by Stephen Kerber, has been studying fire behavior and the effectiveness of PPV in an informative and balanced approach. Additionally, their work references many good sources of information that can help with a solid overall understanding of successful ventilation practices. **APF**



Pic courtesy of Super Vacuum Manufacturing Co., Inc.



Pic courtesy of Super Vacuum Manufacturing Co., Inc.

Super Vac SVU Blows Up a 425,000 cmh Windstorm!

The Super Vac SVU is useful in situations where a district includes large retail outlets, warehouses, public sites, tunnels, or airports. It can easily mount on trailers, skids, or trucks. Optional features include, lift, tilt, rotation, water misting and lighting. Contact your dealer for more details on ...

**"The Most Powerful
PPV Available"**



Super Vacuum Manufacturing Co., Inc. • P.O. Box 87 • Loveland, CO 80539 USA



www.supervac.com

Tel: +970 667 5146

THERE IS MORE THAN ONE WAY TO SUPPRESS A FIRE.



THE EXPERTS AT FIKE SELECT ONLY THE BEST.



ECARO-25®
Exceptional, cost-effective
clean agent fire protection.
Dupont™ FE-25™



PROINERT®
Unique inert gas valve
yields significant system
and installation savings.



DuPont™ FM-200®
Waterless clean agent fire
suppression solutions for the
modern workspace — only
from DuPont.

Fike doesn't just offer protection. We develop technologically advanced fire suppression systems that protect your bottom line, as well as your facility and assets. **ECARO-25**, **PROINERT**, **DuPont™ FM-200®** are USGBC LEED® recognized.

At Fike, we're known for:

- Innovative, reliable products
- Fast, responsive service
- Creating a partnership with our customers

Fike®

**FIKE HAS THE MOST COST-EFFECTIVE, INNOVATIVE
FIRE SUPPRESSION SOLUTIONS AVAILABLE.**

WWW.FIKE.COM
+60-3-7859-1462



Demand Increases for Clean Agents

When selecting a fire suppression system, environmental considerations and the agent's clean credentials are now major considerations, often ranked with equal importance to the speed and efficiency with which the agent extinguishes a fire. So says Alan Elder, EMEA Sales Director for commercial suppression businesses for Tyco Fire Suppression & Building Products.

By Alan Elder

EMEA Sales Director,
Tyco Fire Suppression &
Building Products

This drive to satisfy the market's need for environmentally acceptable, clean suppression agents has led to a number of new systems coming onto the market since the banning of Halon 1301 under the Montreal Protocol on Substances that Deplete the Ozone Layer in 1987. However, many of these potential replacements have failed to live up to expectations in environmental terms, particularly since the 1997 Kyoto Protocol on climate change established the goal of reducing greenhouse gas emissions.

The criteria for a successful and sustainable solution means excluding any of the greenhouse gases identified by the Kyoto Protocol (or to give it its full title, the Kyoto Protocol to the United Nations Framework Convention on Climate Change) that represent man-made interference with the global climate system. The acceptable

solution must have a negligible impact on the environment, insignificant global warming potential, zero ozone depleting potential and a low atmospheric lifetime. This is a daunting challenge that continues to elude many fire safety companies.

At the same time, organisations have become ever more aware that their survival is dependant on the performance of business critical assets, so their protection from fire is high on the corporate agenda. So much so that business continuity, crisis management and disaster recovery planning are terms with which we are all becoming increasingly familiar. At any one time, there seems to be a major conference taking place somewhere around the world addressing one key issue – how to ensure that the business survives a major disaster.

While this has always been a concern for



businesses, their increasing dependency on communication and computer technology has shifted the fire protection attention away from assets generally. Today the concern is very definitely focused on safeguarding those assets that have the potential to debilitate or possibly

destroy the business if it falls victim to fire. However, while the now-banned Halon 1301 proved to be extremely effective as a business critical asset fire suppression agent, environmental concerns were enough to consign it to the firefighting history books. It was followed by a number of other suppressants that ultimately also failed to win over the environmental lobby.

Environmental agenda

Several factors need to be considered when selecting the most appropriate suppression system. These include the nature of the asset that is being protected; whether the location is occupied; and what space is available for suppressant storage. Increasingly nowadays, the company's policy regarding environmental issues also has to be added, as does its attitude to long-term sustainability. The overall picture though is that the market now demands reliable, genuinely sustainable, environmentally acceptable and long-term fire suppression solutions.

Essentially, and depending upon the application, there are three gaseous fire suppression options that warrant detailed consideration. These are: inert gas systems; chemical suppression systems; and CO₂.

The scientists' initial response to the need for alternatives to ozone-depleting agents resulted in the unveiling of a number of often, as it transpired, prematurely heralded options. These Halocarbon alternatives comprised Halon-like compounds. Some proved effective and were

FM-200®
WATER MIST
CO2
FOAM
ALARM/DETECTION
AIR SAMPLING



JANUS
FIRE SYSTEMS™

**EXPERIENCED
MANUFACTURER.
CUSTOMER FOCUSED.**

YOUR GATEWAY TO A NEW KIND OF SERVICE

+1.219.663.1600
www.janusfiresystems.com
 1102 Rupcich Drive
 Crown Point, IN 46307 U.S.A.

FM-200® is a registered trademark of E.I. du Pont de Nemours and Company.



adopted by the fire industry and building occupiers, while others failed due to their inefficiency or toxicity.

Inert gas option

Against this scenario, inert gas suppression has grown in popularity, as it answers the global warming challenge. Inert gas systems have precisely the environmental credentials that the market is demanding: zero ozone depletion potential, zero atmospheric lifetime, and zero global warming potential. They are also a truly sustainable "clean" fire suppression technology. Inert gases are non-toxic, they will not harm sensitive electronic equipment, art treasures or documents, and are safe to use in enclosed areas where people may be working.

While some inert gas systems use a single naturally occurring gas, most are a non-conductive and non-corrosive blend of naturally occurring gases, such as ANSUL® INERGEN®, which is a mixture of Nitrogen, Argon and CO₂, and HYGOD® i3®, which is a 50:50 mixture of Nitrogen and Argon. They have a similar density to air, so the protected space retains its concentration far longer than was the case with Halon 1301. Inert gases work by lowering the oxygen content of the protected area to a point that will not support combustion, but is sufficient to sustain human life. Their appeal for use in occupied spaces is further enhanced, as the gases are invisible and so do not obscure vision, which might otherwise make panic more likely among the room occupants.

So, to organisations specifying that a non-chemical suppressant is of overriding importance, inert gas systems are an attractive option. Nevertheless, there is also a strong demand in the market for an acceptable chemical fire extinguishing agent; one that combines the advantages of the early Halon-like alternatives with the environmental profile of the inert gas systems.

Chemical system solution

An inevitable consequence of the signing of the Montreal Protocol was that Halon installations around the world had to be replaced with alternative systems, and the desire for long-term sustainability became a key driver.

Undoubtedly, the most successful of the early chemical replacements for Halon 1301 was FM200®, which has gone on to be used in



SOLBERG

Solberg offers products of high quality and within the highest technology standards to the international fireprotection market

FIGHTING THE FIRE DRAGON

WITH CLASSIC AFFF/ATC. MODERN ORGANOHALIDES
FREE FOAMS OR CLASS A FOAMS





RE-HEALING FOAM™

Organohalides free foams



ARCTIC FOAM™

AFFF/ATC foams



FIRE-BRAKE FOAM™

Class A foams

Head Office Norway	Australia/Asia
Solberg Scandinavian AS Olsvollstranda N-5938 Sæbøvågen Norway	Solberg Asia Pacific Pty. Ltd. 3 Charles St, St Marys, 2760, NSW Telephone (612) 9673 5300 Fax (612) 9673 5303

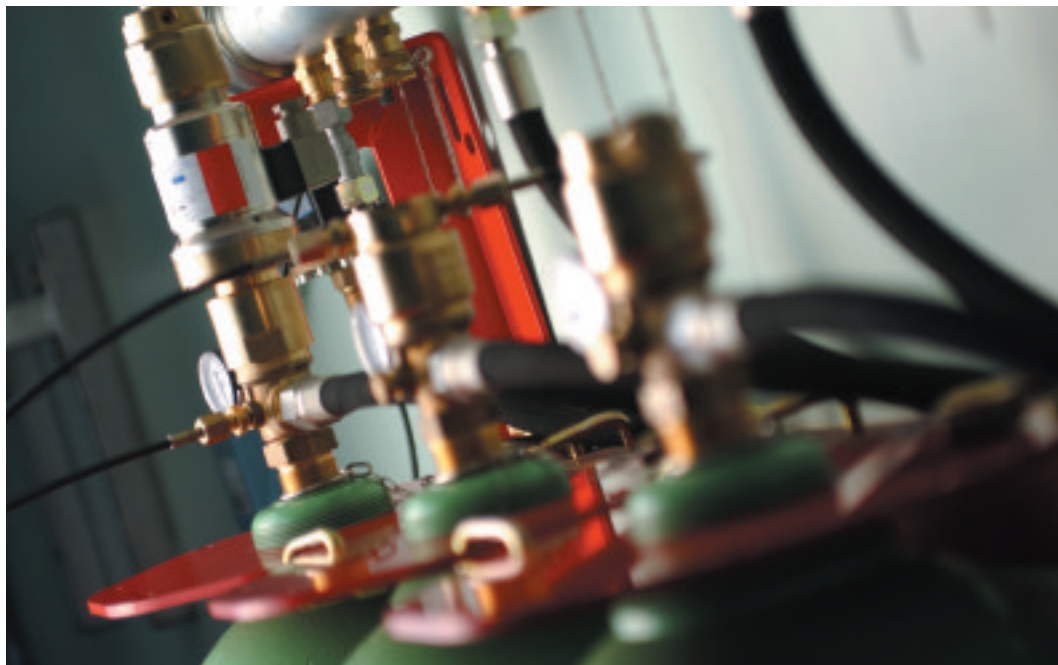
Emergency Stock Hotline

(Norway)
+47 56 34 97 00

(Asia Pacific Region)
+612 9963 3148




www.solbergfoams.com



thousands of successful telecommunications centres and computer suite installations around the world, and remains a very popular extinguishant. It fits the bill in several important respects: it is fast and causes no damage to sensitive electronic equipment; it also represents no risk to the room's occupants; it is free from any toxic side effects and has zero ozone depletion.

However, the latest way in which the need for environmental acceptability has been met is with the introduction of fluid-based systems that use sustainable, long-term technology, such as the SAPPHIRE® system that uses 3M™ Novec™ 1230 Fire Protection Fluid. This not only meets today's legislative requirements, it also meets all of those in the foreseeable future. It utilises new technology and has several major advantages over other Halon alternatives.

The high performance fire-extinguishing agent has a negligible impact on the environment and is designed to protect essential and delicate telecommunications and data processing equipment. It also has applications within the cultural heritage sector protecting artefacts that would otherwise be destroyed by water from traditional sprinkler systems. It has an insignificant global warming potential, lower than any of the halocarbon agents acceptable for use in occupied spaces.

When discharged, SAPPHIRE leaves nothing behind to damage sensitive electronic equipment or documents, and with no agent clean-up required, business critical installations can be back in operation in the shortest possible time. Similarly, priceless historic manuscripts do not have to be subjected to years of restoration work.

Carbon dioxide

Surprisingly perhaps, there are those that, mistakenly, question the use of CO₂ because of its connotation with global warming, the international desire to reduce CO₂ emissions, and its inclusion in the Kyoto Protocol's basket of gases. This misunderstands the difference between CO₂ that occurs naturally in the atmosphere, and the large quantities of undesirable CO₂ emitted as a

by-product of many industrial processes.

The CO₂ used as a firefighting suppressant is extracted from a number of natural CO₂ producing processes, and is then stored until it is needed.

However, CO₂ is most certainly not suitable for total flooding applications in normally occupied rooms or enclosures, as its discharge in fire extinguishing concentrations would be lethal to room occupants. CO₂ does however continue to be a popular and versatile choice for total flooding of unoccupied enclosed special-hazard areas such as power generation equipment, spray booths and turbines. An essential consideration though is to ensure that the flooded areas are adequately ventilated after discharge of the CO₂ to prevent the accidental exposure of personnel to dangerous levels of CO₂ when investigating the cause of the discharge.

One particularly attractive feature of CO₂ is that it can be compressed into a liquid state which, when maintained under pressure, requires a smaller storage footprint than many other gaseous suppression agents. Additionally, as CO₂ has so many other commercial uses, refills are readily available throughout the world.

The new suppression paradigm

The contribution made by the discharge of environmentally damaging gaseous fire suppression systems, is dismissed by some as being inconsequential. After all, they argue, they are primarily used to protect business critical assets and are believed to account for little more than three percent of the market. While this may well be true, discussion around the use of environmentally questionable agents is unlikely to abate.

Additionally, following the demise of Halon 1301 and the forced decommissioning of Halon suppression systems, the business community is more than ever focused on adopting sustainable solutions. Such solutions are also rightly seen as perhaps the only way of more effectively managing the world's resources, reducing waste and safeguarding the global environment.

APF



MINIMAX

Minimax is one of Europe's leading suppliers of fire extinguishing systems.

Powder-based systems are installed on fire engines, ships and other vehicles. They are the heart of these units and are used as mobile fire extinguishers for example on airports, in the oil industry and in situations where the use of water-based solutions is not safe.

Whether fire extinguishing systems or body components are concerned: Minimax provides a varied program for fire extinguishing and emergency vehicles.

Customized solutions are one of our strengths and advantages:

- Single powder units from 50 to 3000 kg
- Twin units up to 6000 kg
- Permanent and high pressure technology
- CO₂ units from 60 to 480 kg
- Individual configurations

Thanks to our experience we have sold more than several thousands of systems worldwide and became the specialists for powder and CO₂ extinguishing systems.

Minimax Mobile Services GmbH & Co. KG
 Minimaxstr. 1 · D-72574 Bad Urach · GERMANY
 Telephone +49 (0) 7154 154-133
 Telefax +49 (0) 7154 154-166
 FunkR@minimax.de · www.minimax.de



Smoke means an immediate alarm.

SecuriRAS® ASD aspirating smoke detector with HD sensor

Securiton AG, Alarm and Security Systems
www.securiton.com, info@securiton.com
 A company of the Swiss Securitas Group

SECURITON

For your safety

Developed by Professionals For the Professionals



Dräger FPS 7000
Dräger PSS 7000

A product developed for extreme conditions

The Dräger PSS 7000 is the result of Dräger's ongoing commitment to providing professional fire fighters with a world class state-of-the-art breathing apparatus.

Key new features of the PSS 7000 is the harness that uses advanced materials and moulding methods to produce exceptional wear resistance and a high grip anti-slip surface to ensure that the harness remains secure on the body.

With easier seamless integration and interface with the facemask, communication equipment, head protection and good ergonomic design to create a higher performance personal safety system, the Dräger PSS 7000 is a major leap forward in the evolution of breathing apparatus for the professional fire fighter.



Challenging Training in Chongqing . . .

By Mat Lock

Dräger Safety Asia Pte Ltd

Chongqing is the largest and most populous of the People's Republic of China's four provincial level municipalities and is home to the latest, state of the art training facility within Asia Pacific.

The 'High Tech Fire Zone' department of Chongqing Fire Brigade has partnered with Dräger to develop its first, gas fuelled fire training centre. This significant commitment to search, rescue and fire training is a clear demonstration by the brigade in relation to its fire fighters and communities.

Designed by the Dräger team, this multi-functional, high rise training centre enables a wide range of operational training disciplines. These include SCBA user, confined space, search and rescue, height safety, well rescue and modern fire compartment training. As with most Dräger systems, they are also capable of facilitating major incident training, command and control training and counter terrorist scenarios also.

With a clear regard for the environment, every effort has been made to minimise the impact that this new facility will have on the surroundings. As such, all fires are fuelled with LPG Propane and cosmetic smoke generators remove the need to burn carbonaceous fuels. In addition, only the very

highest design and safety standards were demanded from the Chongqing Fire Brigade; as a result the Dräger team has closely followed the internationally recognised, European Norms for fire training simulators.

The training facility

The multilevel 'ten storey' training building, is located on the same site as a newly developed fire station and administration centre. The training tower portion provides an ability to affect high level rescues using ladders and/or aerial ladder whilst the lower, two storey portion houses the Dräger systems.

- **First floor:** Dual fire training room inc. live fire scenarios & control centre
- **Second floor:** Training maze inc. smoke and sound simulation
- **Well trainer:** Travels from the ground floor to the roof area

In close consultation with the Fire Brigades architects, Dräger engineers developed the interface



details to ensure a seamless integration of their systems within the facility – this process was aided by utilisation of their Beijing based Project Team.

The 'Live Fire' trainers

At the heart of the training centre are dual training rooms which incorporate a total of three; LPG Propane fuelled, computer controlled fire scenarios:

- Kitchen fire inc. cooker fire
- Bedroom scenario inc. bed fire
- Flashover simulation

These are aimed at fire compartment training in a residential environment and permit a broad spectrum of modern fire fighting techniques to be employed by Brigade Instructors. Each of these fire scenarios can be operated independently from the central control centre which also permits the operator a clear view of the training environment.

"Chongqing Fire Brigade now has a state of the art facility that will take the training of Officers and the Fire-fighters that serve the local communities to another level" stated Damian Eggleston, Fire Fighter Instructor and Technical Trainer, Dräger. "As part of our ongoing commitment to partnerships; a unique training program was developed for the established instructors showing them the almost limitless possibilities and variations available through the use of the simulators. The fire simulators enable the instructors to set realistic and challenging scenarios for all levels of experience with limited impact on the environment and with an extremely high level of safety".

To ensure training diversity, each fire can varied in terms of height and intensity; depending on the chosen scenario, attack results and trainee skill level. At all times the instructor maintains control of the fire(s) and is exposed to the same temperatures as the students.

In addition, powerful cosmetic smoke generators provide obscurity at the desired level to further

enhance the training scenarios. These smoke generators use a mineral oil based solution to ensure there is no impact for the environment, Brigade personnel or the surrounding residents.

Search and rescue capabilities

Dräger has installed a training maze for search and rescue training on the second floor. This can be accessed either via the nearby staircase or inter-connecting well trainer. This system is used to train the Chongqing fire fighters in areas of confined space, stress management, improved orientation, team work, communication, self awareness and sharpening of reaction times.

Designed to operate in the most hostile training environments, the Dräger maze is manufactured using durable, welded mesh, special wooden substructures and non reflective paint. It includes a leveling capability and permits the use of cosmetic smoke without hindering the free passage of the ventilation system. Such a design also permits the use of IR and/or Thermal Imaging equipment.

At various intervals throughout the maze Dräger has inserted a series of obstacles. These include pipe restrictions, irregular restrictions, slopes and manhole entrances. Most of these can be re-orientated by the instructors to ensure that the training environment can be altered. This is to ensure that training diversity is facilitated for each student.

"There are a huge range of operational scenarios made possible through the inclusion of this training maze. During the training component of this contract we demonstrated the versatility of the system; team work and communication were essential skills required to be used by the students. From confined space drills to rescuing an injured fire fighter, the possible scenarios are almost infinite" stated Mat Lock, Regional Manager, Dräger Safety Solutions – Asia Pacific. "The Chongqing fire fighters worked hard during the



training and demonstrated their desire to optimise these new systems”.

Dräger has incorporated a range of safety systems within the maze design. Each student's progress can be monitored through the control centre using an innovative sensor technology – it is even possible to monitor multiple students at one time. Additionally, each of the training maze sections can be easily removed to provide emergency access/egress. Additionally, a series of IR cameras provide the operating staff with a remote view of the training activities within the compartment.

The control centre

The entire facility is operated via a central centre which is located in the control room overlooking the live fire compartments. Underpinned by an industrially proven PLC hardware configuration,

segment to demonstrate the versatility of the system.

As each facility is developed in line with the client's needs, so the allied training that Dräger delivers must also be personalized to meet local requirements. It is common for each facility to have an individually developed training package incorporating local fire service instructor's spending “one on one” time with Dräger technicians and a Dräger fire fighter instructor. This ‘workshop’ approach allows the instructor to get some ‘hands on’ time with the simulator and spend valuable time with Dräger's experienced team who have developed and used systems throughout the world.

“There is no doubt, the modern training arena remains a dynamic and exciting environment which requires continual re-assessment in the

Not only does the system perform self diagnostic checks to ensure full and correct system status prior to training but it also captures a wide range of data for use by the training and maintenance teams post-training.

the intuitive, Windows™ based operating system provides real-time information to the controller in English, German or the local Chinese language.

The ease and simplicity of the operating system is a testament to the Dräger design team and engineers. Not only does the system perform self diagnostic checks to ensure full and correct system status prior to training but it also captures a wide range of data for use by the training and maintenance teams post-training.

The training

A unique ‘instructors’ training package was developed and delivered by Dräger. This included operator training to ensure successful and safe use of the fire simulators together with an operational

search for improved efficiencies and compliance maintenance. The system supplied to Chongqing reflects the latest technology and training deliverables as would be expected by any professional fire brigade around the world.” stated Mat Lock, “Critical to the success of these projects is Dräger's ability to offer a holistic service. From design to commissioning, from fire fighter training to through life servicing; Dräger's ability to harness the experience of its local and international resources ensure that each facility is honed to meet the client's requirements”.

The Chongqing Fire Brigade training facility represents a modern and professional engineered solution of which the client and Dräger are rightly proud.



For more information please contact Dräger on the below details:

Mat Lock

Dräger Safety Asia Pte Ltd

Singapore

Email:

mat.lock@draeger.com

argus™ 4



Who's the toughest member of your crew?

- A range of thermal imaging cameras designed especially for Firefighters
- Small, light, robust and reliable
- Ergonomically designed
- Digital image capture for up to 100 images
- Full colour LCD viewing screen – 3.5in
- Spot and ambient temperature measurement
- Extended battery life

argus™ 4 the rugged tough member of your crew

**Ask us about our full
range of camera options**

+852 3679 364 8/9
argus.enquiries-ap@e2v.com
www.argusdirect.com

e2v

During your evaluation, be sure to use thermal imagers in a variety of everyday tasks, including sizeup and overhaul



Evaluating Thermal Imagers

Five Steps to Selecting the Best TI for Your Department

By Brad Harvey

Bullard Thermal Imaging Product Manager

Because thermal imagers (TIs) have quickly become a necessary tool for fire departments, the number of suppliers and models has expanded, giving fire departments (FDs) more choices than ever when it comes to choosing a TI.

Evaluators must select among several technologies, a great number of features, and a wide range of service and support offerings. With the increasing complexity of the market, many fire departments are finding it difficult to determine which thermal imager and accessories they should purchase. This article aims to provide a picture of the ideal evaluation process, which will result in your department making the best purchase decision.

Step One: team up and learn

Start by selecting a team of people to manage the TI evaluation. It is important to include people of different ranks and specialties, including an officer with decision authority as well as line firefighters who will actually be using the TI. This variety ensures that the selected unit is the actual unit that best meets the individual department's needs.

If you have never purchased a thermal imager,

take the time to learn the basics of thermal imaging. How does the technology work? What are the uses and limitations of TIs? Evaluation teams should seek advice or instruction from local departments using TIs, attend large trade shows, training seminars and even visit TI manufacturers. Be sure to verify what you are learning from as many independent sources as possible because there is conflicting and inaccurate information in the field.

If you have owned TI's in the past, take the time to familiarize yourself with the features and benefits of the latest technology. If you are expanding your current ownership, consider the capabilities of the equipment that you already have and look for consistency of operation between a new imager and imagers that you already own. The technology in a TI improves rapidly so you should always invest some time in surveying the market prior to any purchase.

Test features of each unit under various conditions and scenarios, including structural fire



Step Two: do your homework

Initiate the homework phase by gathering information from distributors and TI manufacturers, with the goal of identifying all of the current products available. Next, get direct input from other FDs currently using different TIs. Ask how well the unit has handled the rigors of firefighting, the value of various features on the unit and the type of service and support received from the manufacturer and/or local distributor. Ask the FD about specific manufacturer claims on options or performance to verify if the unit performs as advertised. If you are new to thermal imaging technology, you will benefit from gleaning information and learning from the experiences of a number of different FDs.

After researching what is available as well as what other FDs have found useful, develop an initial outline specifying what you believe are the critical features for a TI. Differentiate between “essential features” (such as heat and water resistance) and “desirable features” (such as

2-hour battery life). Then review the units available and determine if you can immediately eliminate any of them from your evaluation process. You may eliminate them because they lack a feature you feel is critical, or because a unit received poor reviews from other FDs. Even if you can limit the initial field to five or six TIs, the evaluation process can demand a great deal of time and resources.

Step Three: the classroom test

Once you have narrowed the field to a manageable number of potential units, it is time to gain more detailed information and first-hand experience. Schedule a day for each manufacturer or local representative (or several of them) to make a “classroom presentation.” In an effort to be fair to the sales people, plan on 30 minutes per TI. This gives the sales person time to show you the features and benefits of his TIs while you gather other information, including:

- Standard and optional features available on the unit, which can include temperature measurement, telemetry, color display and others.
- Unit operating procedures, including unit activation, battery changing and charging, and use of additional features.
- Service issues, including length of warranty (be sure to clarify what it covers), availability of extended warranty as well as service turnaround.
- Performance characteristics, including durability, heat resistance, water resistance, telemetry power, etc.
- The cost of the unit, including additional features, extended warranties, accessories and spare parts.
- Support offered as part of the overall package, including training (clarify the type of training: 20 minutes of how to turn it on or two hours of how TIs work?), web resources and ongoing education.

Evaluating teams should always keep one key note in mind: there is no recognized consensus standard for TI performance. As a result, FDs should ensure that the supplier *proves* every claim

Part of any successful evaluation includes determining how easily firefighters can carry an imager as well as their normal supply of equipment



he makes. If the supplier says his/her TI can stay underwater for an hour, fill up the kitchen sink and time how long it lasts. If the supplier says the TI can be tossed across the room, then clear a path and let the tossing begin. While most suppliers are honest and ethical, some may unfairly stretch the truth to win your business. To protect yourself and your department's purchase, do not accept any claim or statement as fact until the supplier proves it.

For convenience, attempt to schedule all presentations on the same day or the same week, with all evaluation committee members present to ask questions and document their impressions of each manufacturer. Ideally, committee members should use a checklist or table to document their conclusions and to help ensure that a fair and equal comparison is made between the TIs.

Step Four: the real world test

The real world test, or hands-on evaluation, is the most critical part of your evaluation process. While one thermal imager may stand out in the classroom, the FD's final decision could be different after firefighters get the opportunity to use thermal imagers under realistic conditions. In the evaluation, some TIs will show they look and act better in the classroom than in a real fire. Some features seem great in the classroom, but do not perform as expected once they venture into the real world of emergency response. As with the classroom presentations, aim to evaluate all of the units on the same day. This will allow each unit to be compared side-by-side in real time, under similar conditions.

Careful planning and preparation are essential to a successful hands-on evaluation. Before the evaluation, decide how you will test the features that mean the most to your department, and develop a checklist to make sure that committee members are using the same criteria. Test each feature of the unit under various conditions and scenarios, such as live fire, simulated hazmat incidents, fire-alarm investigation and outdoor searches. Crawl with each unit; look under objects. Determine if the TI can be carried up a ladder easily, or if a hose team can advance a line while carrying the TI. Always evaluate TI's under real fire conditions if possible. This is where the performance of the TI is most critical and where you should spend some time evaluating.

Have each member write notes about each TI immediately after they use it. To help quantify the evaluation process, members should be encouraged to rank specific factors using a number scale. Develop the scale and factor sheet in advance, grading such aspects as ease of use, performance in a fire, ability to carry other equipment, etc.

Step Five: the decision

Following the completion of the classroom and hands-on evaluations, it is time to decide which thermal imager best meets the department's needs. Compare the written notes and total the scored rankings. If there are specific features that



The real world test is the most critical part of your thermal imager evaluation

are more valuable, you may want to consider weighing them more heavily. Remember to include non-tangible issues such as service and support, which will not only help you get your units into operation, but will also assist you in keeping them in service for years to come. Consider exactly how repairs are handled and the overall support you will receive. Do not forget the information you gathered from other FDs about their experiences with TIs. Your neighbor may be the best proof of what happens after you sign the purchase order.

Once you have determined which TI you will purchase, place your order or formulate the tender documents. The distributor or manufacturer can help you write appropriate tender specifications.

Conclusion

Despite the wider acceptance of TIs in the fire service, there is still much misinformation and misunderstanding about the technology. The reality is that TIs are still expensive tools. As a result, potential buyers must perform the proper amount of preparation and evaluation to ensure that they purchase the best overall value possible. Remember that value is not just price. Purchasing cheaper TIs may seem like a bargain, until those TIs are repeatedly out of service or sitting in compartments because the line firefighters find them awkward or unusable. Like any other capital expenditure, FDs should expect their units to provide years of reliable service. To do this successfully means selecting the TI with the best design and features, best record of accomplishment in real world performance and best possible service and support. It is not easy to make a proper selection effort, but time well spent on the process will ensure that the FD and the public it serves will reap long-term benefits from these valuable tools.

APF

Brad Harvey is the Thermal Imaging Product Manager at Bullard. He is a veteran of public safety as a firefighter, police officer and paramedic and is certified through the Law Enforcement Thermographers' Association (LETA) as a thermal imaging instructor. Harvey has worked as a high-angle rescue instructor and is a certified rescue technician and fire instructor. If you have questions about thermal imaging, you may e-mail him at brad_harvey@bullard.com



Follow the virtual leaders.

Our airport crash tenders of the series IMPACT and DRAGON are an overall outstanding class "Ground Staff". With highest mobility chassis, powerful high-torque IVECO engines, extinguishing agents of up to 14,000 litres, powerful pumps and monitors as well as aluminium modular body and equipment compartments system you'll drive it sovereign ahead by every call out.

Interested? Then follow us to: **www.iveco-magirus.net**

**IVECO
MAGIRUS**
**IVECO
MAGIRUS**
Camiva

IVECO MAGIRUS
Brandschutztechnik GmbH
D-89079 Ulm
magirus@iveco.com

IVECO MAGIRUS
Brandschutztechnik GmbH
A-8301 Kainbach / Graz
lohr@iveco.com

IVECO S.P.A.
Stabilimento Mezzi Speciali
I-25127 Brescia
ivecomezzispeciali-e@iveco.com

IVECO MAGIRUS
Fire Fighting Camiva
F-73230 Saint-Alban-Laysse
contact@camiva.com



Colet Special Vehicle Design

K/30 Jaguar

Ultra Performance Environmentally responsible, COLET K/30 Jaguar w/EE option package; ULEV Ultra low emissions all wheel drive ARFF (Aircraft Rescue and Fire Fighting) vehicle.

- 3000-gallon (11,300 liter) water capacity.
- Available with water capacities of 10,000 liter to 16,000 liter (2,500 to 4,000 gallon).
- Acceleration 0-50 mph (80 kph) *fully loaded* under 17 seconds.
- Chassis is a COLET supermonocoque stainless steel, COLET Active Chassis Control suspension
- Provides unequalled stability and control as well as the lowest center of gravity.
- Side slope of over 40 degrees as a minimum provides rollover protection not afforded by 30° trucks. Suspension allows driver or computer control of vehicle angles as well as ground clearances.
- Twin Electronic Diesel Drive Power.
- Upgraded hydrostatic pumping systems available with customer selectable capacities.
- *Braking distances are the shortest possible, half of other trucks.*



- *Rapid Transport option for aircraft. C-130 option. Provided with hydraulic chassis locks for rapid securing to aircraft.*

This truck weighs in at less than half of most 3,000 gallon trucks out there.

That provides superior safety through handling, braking/deceleration and acceleration.

This is **FACT**.

This ultra performance truck also is the cleanest to the environment. Using motors w/ cooled EGR to meet the 2.5-gram NOX as well as the .1 PM emissions standards closest to Euro4 ON ROAD CITY or USEPA On-highway emissions. For CITY and urban ultra clean standards.

Also, 15 other models custom built for the

ultimate life saving performance.

This one is optioned/custom built for Artic Operations 60 degrees below zero as well as 120°F for Desert operations.

For more information, please contact:

Colet Special Vehicle Design
6550 Redeker Place
Newark
CA 94560
USA

Tel: +1 510 494 5304

Fax: +1 510 494 5308

Email: sales@coletsvd.com

Website: www.coletsvd.com

The IVECO MAGIRUS Airport Reception Committee



The protective fire safety on airports is generally considered to be one of the most complex and greatest challenges for the fire services – and thus also for all manufacturers of fire fighting vehicles. IVECO MAGIRUS offers a world-wide unique product range for holistically covering all potential hazards that must be met on airports.

For the protection of buildings and facilities, IVECO MAGIRUS offers a wide range from command vehicles via first-intervention

vehicles, light and special fire fighting vehicles to various different turntable ladders and aerial telescopic platforms with a rescue height of up to 54 m. Rescue vehicles and equipment carriers as well as swap body vehicles with a large roll-off container program complete the range.

With the airport crash tender range DRAGON x4, x6 and x8, IVECO MAGIRUS offers three variants in this “top of the range” category, that will meet even the

most specific requirements. Real powerhouses in the form of currently unrivalled high-performing IVECO 1.024 hp or 1.500 hp engines with last generation common-rail injection technology do not only provide for an enormous acceleration but also for an enormous fire fighting power. Up to 10,000 l/min pump capacity, 14,000 litres fire fighting agents in a combination of water, powder, and foam as well as precise monitors with long throw ranges guarantees a fast and effective fire fighting operation.

The excellent cross-country capabilities of these vehicles provide for an unrestricted mobility and ensure that fire fighting can also be effected away from the runway without any loss of time.

Best example: the delivery of 3 DRAGON x6 to AENA (Aeropuertos Espanoles y Navegacion Aerea). The vehicles possess a 1,024 HP IVECO-V8 engine with direct injection system already mentioned above, an Allison-automatic-gearbox with 6 forward and 2 reverse speeds as well as 6 self-ventilated disc brakes with ABS sensor at each tyre. The maximum speed is approx. 120 km/ h; it accelerates the DRAGON's 35 tonnes from 0 to 80 km/h in a very impressive 23 seconds.

The DRAGON x6's driver's cab and crew

AIRCRAFT RESCUE FIRE FIGHTING VEHICLES ROUND UP

cab (1+3 places) are flexibly mounted onto the chassis frame and are made of aluminium alloy resistant to all types of corrosion. Easy access to the engine is possible by a hydraulic system enabling folding-open of the rear mounted engine cover, also made of aluminium alloy.

The vehicle's technical fire fighting equipment includes a GRP water tank with 10,000 litres capacity as well as a GRP foam tank of approx. 1,200 litres. The Magirus pump delivers 7,500 litres/minute at 10 bars, the roof monitor 5,000 litres/minute and the front-monitor 1,500 litres/minute. The additional available dry powder system has a capacity of 250 kg.

Furthermore the DRAGON x6 for AENA is provided with a driver's cab self-protection system with integrated water-spray nozzles which are mounted at the front as well as left and right above the cab. An additional floor-spraying system with four spray nozzles distributes water or water and foam.

Like all DRAGONS also this vehicle disposes of state-of-the-art CAN-Bus-Technology guar-

anteeing the fastest data-transfer between each of the aggregate's modules.

The IMPACT series, with the variants x4 and x6, is the ideal completion to the DRAGON range or even a cost-effective alternative, e.g. for smaller airports. Based on highly cross-country capable, single tyre IVECO four-wheel-drive chassis, these vehicles are extremely mobile but nevertheless equipped with an impressive fire fighting power: depending on vehicle type up to 12.000 litres of fire fighting agent can be carried on board. This concept has been very much proven in practice as is shown by the more than 150 IMPACT vehicles that are currently in world-wide operational use at airport fire service departments.

An IMPACT x6 (TLF 30/57-7-360) on an IVECO Trakker was delivered to the Adolph-Wuerth-Airport in Schwäbisch-Hall (Southern Germany). The vehicle features tanks for 5,700 l water and 750 l of foam compound as well as capacity for 360 kg of CO₂. The powerful MAGIRUS pump delivers an output of 3,000 l/min at 10 bars. 440 HP engine

power enables speed on the runway; all-wheel drive and single tyres allow it to be extremely capable off-road. Furthermore a lighting mast mounted on the rear of the vehicle with 2 x 1,000 W and a 13.5 kVA electric generator belongs to the vehicle equipment.

For the Spanish Dragon x6 and the Schwäbisch Hall pump water tanker TLF as with all other IVECO MAGIRUS vehicles continuous operational preparedness is guaranteed: A network of Service stations in almost 150 countries around the globe is available round the clock.

For more information, please contact:
Iveco Magirus Brandschutztechnik GmbH
Graf-Arco-Straße 30
89079 Ulm
Germany
Tel. +49 731 408 2564
Fax +49 731 408 2410
Email: magirus@iveco.com
Website: www.iveco-magirus.net

Morita Corporation

Model	MJ-12F	MJ-10F	MJ-6F
GVW(Approx.)	41,000kg	34,000kg	23,000kg
DRIVE	8x8	6x6	4x4
Tire size	24.00R21XZL	24.00R21XZL	24.00R21XZL
Top speed	115Km/H or more	115Km/H or more	115Km/H or more
Acceleration 0 to 80 km/h	Max. 25sec. at 40ton	Max. 23sec. 25sec. at 36ton	Max. 25sec. at 22ton
Engine Max. output (kW/rpm)	753/1,800 to 2,100	753/1,800 to 2,100	395/2,100
Cabin and Body Material	GRP, Stainless, Aluminum	GRP, Stainless, Aluminum	GRP, Stainless, Aluminum
Water tank capacity	Max. 14,000L	Max. 12,500L	Max. 6,000L
Fire Pump	7,600L at 14 bar	7,600L at 14 bar	4,500L at 14bar
Pump Drive	Auxiliary Engine or Power Divider	Auxiliary Engine or Power Divider	Power Divider
Foam Proportioner	Around the pump 3% and 6%	Around the pump 3% and 6%	Around the pump 3% and 6%
Roof Monitor (Dual Output)	6,000L/min and 3,000L/min @ 14bar	5,000L/min and 2,500L/min @ 14bar	3,000L/min and 1,500L/min @14bar
Under Truck Nozzle	6 pcs, 60L/min	6 pcs, 60L/min	6 pcs, 60L/min
Bumper Monitor	1,150L/min @ 14bar	1,150L/min @ 14bar	750L/min @14bar
Optional Equipment	First Attack Hose Reel Dry Powder Capacity Dry Powder Hose Reel	First Attack Hose Reel Dry Powder Capacity Dry Powder Hose Reel	First Attack Hose Reel Dry Powder Capacity Dry Powder Hose Reel

Owing to ongoing product development and improvement these specifications are subject to change without prior notice.

In addition to the above standard sizes, custom configurations are also available to suit specific requirements.



MJ-12F not only conforms to ICAO standard and recommendations, but also passes stringent testing requirements of MORITA's technical division. A history of 101 years of serving Japanese market with unwavering reputation and 63.9% share of Japanese ARFF market are testimonies of reliance of Morita Standard at all major airports of Japan, MJ-12F with its heavy-duty body and high stability, enables safe and speedy rescue and fire fighting operations in airport emergencies.

For more information, please contact:
Morita Corporation
25-31, 3 Chome
Nishishinbashi
Minato-Ku
Tokyo 105-0003
Japan
Tel: +81 3 5777 5078
Fax: +81 3 3435 7386
Website: www.morita119.com



Oshkosh Airport Products Group Introduces Stinger Q4 Rapid Intervention Vehicle

Exclusive Pulse Delivery and QuadAgent systems deliver best-in-class performance

OSHKOSH AIRPORT PRODUCTS, a division of Oshkosh Corporation, recently introduced the new Stinger Q4™ rapid intervention vehicle (RIV). Co-developed by Oshkosh and sister company Pierce Manufacturing, the Stinger RIV features exclusive Pulse Delivery® and QuadAgent® systems to meet any airport's rapid intervention vehicle requirements.

"The Stinger Q4 rapid intervention vehicle is a fast response vehicle that is ideally suited for smaller airports, yet is also a tremendous asset at larger facilities," said Tim Raupp, Oshkosh Corporation Airport Products president. "With its exclusive Pulse Delivery and QuadAgent technologies, the Stinger vehicle can meet a variety of challenges, and together with the Oshkosh Striker offer customers a full-line of high performance ARFF vehicles."

The Stinger Q4 meets Class I and II product index ratings, and is engineered to deliver best-in-class performance for aircraft rescue, firefighting, hazmat and emergency response at airports of all sizes. With its smaller size and greater maneuverability, it is ideally suited for a wide range of incidents either on or around the airfield.

The Stinger Q4 is built on the Ford Super Duty F-550 chassis in either Class I or Class II configurations. Depending on the version selected, the Stinger Q4 RIV can carry 120 gal. (454 L) or 300 gal. (1136 L) of water and 200 lbs. (91 kg) or 500 lbs. (227 kg) of dry chemical agent and 120 lbs. (54 kg) of ASME clean agent.

"Using new systems such as QuadAgent and Pulse Delivery are the result of listening to our customers' needs for innovative firefighting technologies with enhanced knockdown power from a greater distance," said Raupp. "The Stinger Q4 rapid intervention vehicle is a tremendous example of Oshkosh and Pierce engineering and performance in action."

The new Pulse Delivery technology allows firefighters to deliver dry chemical powder long distances in a truly "dry" form by producing small packets of powder within the nozzle and propelling them forward at speeds of up to mach 1. Combined with the nozzle velocity, the packets have enough force to allow the operator to cast dry chemical powder over 90 feet (27m), more



The new Stinger Q4™ from Oshkosh and Pierce features QuadAgent® and Pulse Delivery® systems for unmatched firefighting performance

than three times the current capability. Not being entrained in the water stream, the dry chemical can begin suppression the moment it arrives at the source of combustion.

The new QuadAgent technology can attack almost all types of fire with immediate fire suppression and ultimately, termination. QuadAgent allows firefighters to easily and quickly select any combination of four agents: water/foam, CAFS, dry chemical and clean agent to affect the best fire fighting solution right from the nozzle. The QuadAgent system allows for deployment of all agents to over 90 feet (27m), increasing standoff and keeping firefighters a safe distance from the fire.

This unprecedented combination of innovative firefighting technologies in a uniquely maneuverable rapid intervention vehicle

means airport firefighters can respond more quickly and with more power. Because the Pulse Delivery technology delivers truly dry chemicals long distance, it is among the most significant advances in firefighting agents since the introduction of foam.

For more information, please contact:

Oshkosh Truck Corporation

P.O. Box 2566

Oshkosh

WI 54903 2566

USA

Tel: +1 920 235 9150

Website: www.oshkoshtruck.com

*Pulse Delivery® and QuadAgent® systems are registered trademarks of Advanced Fire Control Technologies, Centennial, Colo.

Panther ARFF Vehicles Ready to Serve

ROSENBAUER serves the Airport Fire Services around the world with innovative and professionally designed quality PANTHER ARFF Vehicles. Chassis, superstructure and fire fighting systems are fully integrated, designed and manufactured within the ROSENBAUER Group.

In September, the PANTHER ARFF, which has already captured numerous accolades, was awarded the IDEA (International Design Excellence Award) in gold. This distinction is one of the world's most well-known and only 35 of the 1,517 projects submitted were rewarded with a first prize.

The PANTHER 8x8, which has eight

powered wheels, an operational weight of up to 52 tonnes, 19,000 litres of extinguishing agents and a top speed of 140 kph, is currently the leading ARFF vehicle on the market and meets the demands of aircraft of the size of the Airbus A380.

South Africa receives nine ROSENBAUER ARFF vehicles

The ROSENBAUER Group, a leading manufacturer of special airport fire fighting vehicles, recently handed over nine ARFFs to the South African airport operator, ACSA (Airports Company South Africa). The consignment consisted of six BUFFALO series

AIRCRAFT RESCUE FIRE FIGHTING VEHICLES ROUND UP

vehicles and three newly designed PANTHER 8x8s on MAN chassis. These modern vehicles are to be stationed at South Africa's largest airports and are part of a long-term ACSA purchasing program, which has the aim of bringing its infrastructure and safety systems up to the highest standard in time for the World Football Championships in 2010.

PANTHER – the ARFF top model

The three PANTHER 8x8s supplied were also built on and MAN chassis. They are powered by a 1,000 hp diesel engine with automatic Allison transmission. The vehicles can accelerate from 0-80 kph in under 25 seconds.

The PANTHERS have two separate engines for the chassis and the extinguishing pump, which facilitate simultaneous, full extinguishing performance in tandem with maximum speed. In combination with the ROSENBAUER N100 normal pressure pump, the DEUTZ pump engine provides extinguishing performance of up to 9,000 l/min at 10 bar, whereby the extinguishing agent payload, consisting of 11,000 l of water and 1,500 l of



foam concentrate, can be sprayed for up to 90m in around 75 seconds. Two of the South African PANTHERS are equipped with a HRET (High Reach Extendable Turret) and one with the electronically controlled RM60E monitor.

Six Supreme BUFFALO ARFFs

The Supreme BUFFALO are built on a 630 hp, 6x6 all-wheel drive MAN chassis. A top speed of around 130 kph is available and the vehicles accelerate from 0-80 kph in 25 seconds.

In addition to attack times, the most important requirement for every ARFF is pump and roll operation. ROSENBAUER provides this feature by means of a Chelsea

852 auxiliary engine. The extinguishing agent pump (R600) with an output of 6,000 l/min at 10 bar is powered by the main engine and through this system, the available engine power is split between driving and extinguishing.

The decisive factors in the capture of this ARFF order included the comprehensive training of the crews, to enable them to operate these sophisticated vehicles in an optimum manner. In addition to familiarization with modern ROSENBAUER technology, this training also covered intensive and comprehensive instruction in the use of the extinguishing systems and driving techniques.

For further information, please contact:

Rosenbauer International AG

Paschinger Strasse 90

4060 Leonding

Austria

Tel: +43 732 6794 0

Fax: +43 732 6794 89

Email: gerda.koenigstorfer@

rosenbauer.com

Website: www.rosenbauer.com

Albert Ziegler Z8

ALBERT ZIEGLER GmbH & Co. KG in Giengen/Germany is one of the leading companies worldwide in the fire service market.

It was founded in 1891 and produces fire hoses, fire pumps, monitors, foam admixing systems, and as its main product line the most modern fire fighting vehicles for all kinds of fire fighting.

Well advanced research, development and design, based on many years of experience, high qualified staff and solid workmanship guarantee a high quality and a long life of all products.

The adjustment to special requirements as well as the continuous intensive dialogue with our customers results in economic solutions which are easily put into practice.

The permanent increase of civil aviation challenges the airport fire departments all over the world to meet the international requirements.

The increasing amount of aircrafts with immense passenger capacities asks for a continuous optimization of tactics and the supply of powerful fire fighting vehicles.

Today the modern technology of chassis and superstructures allow the combination of fast trucks with excellent off-road capabilities, carrying a considerable amount of extinguishants.

ZIEGLER have produced the first airport fire fighting truck of the type Z8 more than 15 years ago, specially designed for the needs of airport fire departments. Meanwhile this series is an indispensable component for



the safety concept on many national and international airports.

Recent deliveries were for various international airports in Turkey, for Zagreb, Brussels, Altenburg, Munich, Hamburg, Nuernberg, Luxembourg. More Z8s will be delivered to Gdansk, Baku, and Turkey in 2009 and 2010.

With the new 8x8 chassis configuration in 2005 and the patented ZIEGLER superstructure in ALPAS technology ZIEGLER has become market leader in this class in Europe.

The basis of the Z8 which by far exceeds the recommendations of ICAO is a MAN 8x8 chassis with single tyres, powered by a V12 diesel engine with a performance of 735 kW (1000 HP) in EURO 3.

The truck with a maximum weight of 43,000 kg is able to master extreme off road conditions and has a high driving performance with a maximum speed of around 140 km/h and acceleration from 0-80 km/h within 25 seconds.

The high performance ZIEGLER pump is driven by a separate diesel engine with

360 kW (480 HP) and enables to perform 10,000 l/min at 10 bar.

The main components are the water tank with 12,000 – 12,500 l, 2 foam tanks with 750 l each and a dry chemical unit with 500 – 1,000 kg. The roof monitor can put out 6,000 l/min with a reach of up to 90 m, the bumper monitor 2,200 l/min, and it goes without saying that the trucks have an efficient body/ground protection.

A major option is an articulated telescopic boom with a piercing unit.

The superstructure consists of four separate modules: driver/crew cab, water/foam tank, pump bay and equipment locker, all of them are independently mounted on the chassis to prevent distortion.

The patented ALPAS segments are additionally anodised and offer an optimum protection against corrosion. At the same time this system allows highest flexibility for customized installations.

The spacious driver/crew cab for maximum 1+3 offers highest visibility with ergonomically arranged seats, joysticks, and operating instruments. Every action is electronically controlled by an integrated CAN-Bus system and shown on coloured graphic displays. Thus the crew can fully concentrate on their main job of rescuing, fire fighting, and protecting in full accordance with ZIEGLER's promise:

WE PROVIDE SAFETY.

For more information, please contact:

ALBERT ZIEGLER GmbH & Co. KG

Feuerwehrgerätefabrik und

Schlauchweberei, Postfach 16 80

D-89531 Giengen/Brenz, Germany

Tel: +49 73 22 9 510

Fax: +49 73 22 9 51 211

Email: jhitzler@ziegler.de

Website: www.ziegler.de

New ARFF-Fleet at Hamburg International Airport: ZIEGLER Z 8



Hamburg International Airport is presently reorganizing its ARFF-Fleet and the decision was to use ZIEGLER Z 8s. The first unit of four is now in service.

ZIEGLER Z 8 is based on the most modern technology and offers tailor-made solutions for all kinds of airports. New: total height with embedded 20 m Snozzle telescopic boom now only 3.800 mm.



we provide safety

Albert Ziegler GmbH & Co. KG • MANUFACTURERS
OF FIRE SERVICE VEHICLES, PUMPS AND HOSES

P. O. Box 16 80 • 89531 Giengen • Germany
Memminger Str. 28 • 89537 Giengen • Germany
Phone: +49 7322 951 0 • Fax +49 7322 951 464
E-Mail: export@ziegler.de
www.ziegler.de

Rescue equipment

4000-series The power of innovation

Our 4000-series
includes many
innovations:

- CORE™ single hose system
- i-Bolt flat central bolt construction
- LED lighting in carrying handle
- Speed Valve on all ram jacks and spreaders for quicker tool opening

Based on the latest technologies Holmatro develops rescue tools which perform better and make your procedures quicker, safer and easier.

www.holmatro.com



CORE™ Technology



i-Bolt Technology



LED lighting in
carrying handle

holmatro
mastering power

Holmatro Rescue Equipment BV - P.O. Box 33 - 4940 AA Raamsdonksveer - The Netherlands - T +31 (0)162-589200 - E info@holmatro.com

BATTERY - OPERATED BACKPACK POWER UNIT

SP700



PATENT PENDING

The Gen Group LLC SP700 backpack power unit is the perfect solution for vehicle, train or aircraft accidents, where rapid access and prompt intervention are required.

Its unique design offers operator safety and mobility, weighing only 18 kg (39.6 lbs). The unit is powered by a rechargeable 12V DC battery, offering the same tool power outputs as gasoline fired systems.

The SP700 may be used to power all rescue tools currently on the market (cutters, spreaders, rams, etc) working at 350, 630 and 720 bar (5100, 9200, 10500 psi).

The battery has a run down time of over 30 minutes, and is easily replaced with a fresh power cell. The SP700 is ideally suited to operation in remote areas, and for RIT, forcible entry, or anywhere combustion exhaust poses a hazard. Its quiet operation allows for a more controlled rescue scene.

The VP700 backpack power unit is identical in weight and function to the SP700. The sturdy outer case allows for operations in the most unforgiving environments, making it perfectly suited to confined space, and other high hazard areas. The straps provided are robust enough to allow the unit to be lowered by helicopter into an emergency scene. Watertight until 2mt. depth.



VP700



PATENT PENDING

Please contact
us for a
demonstration
unit

INTERFRON SpA - Via canale, 2 - 16035 Rapallo (GE) - Italy

Tel. +39 0185 263636 - Fax +39 0185 263355 - vendite@interfron.it - www.interfron-hydraulicrescue.com

GEN GROUP LLC - 859, Park av Suite 108 - Orange Park - FLORIDA 32073 - USA

Tel. 904 541 0761 - Fax 904 541 0762 - mabshire.gengroup@att.net - www.gengroupllc.net



Medical Care in Extrication Rescue

By Brendon Morris

Holmatro Rescue Equipment b.v.

Within the context of vehicle extrication rescue the need for an advanced level of care for entrapped patients is needed more than ever before. After a vehicle collision of significant force – as in the case of high-speed impact – it is likely that the occupants of the car, particularly the driver and front seat passenger, will be entrapped.

Entrapment can be physical, mechanical or both. In other words, either the victim is entrapped by his injuries (physical) or by the fact that the vehicle has crumpled in such a way that it is not possible to get out of the wreckage (mechanical). Regardless of whether there is a physical or mechanical entrapment, there is very likely to be significant internal injury after a high-speed impact. It is this internal injury that can be worsened due to inappropriate handling and lack of good medical care during the extrication rescue process.

Combining technical extrication skills & advanced medical care

The specialized discipline of extrication rescue is performed with varying degrees of efficiency across the globe. To reduce the negative effects from moving an entrapped victim (their condition gets worse due to their already fragile injuries) specialized tools and techniques are needed. With rescuers in more and more countries being aware

of this, the overall demand for these specialised tools and techniques has increased over the years. What makes the overall discipline of extrication rescue so successful is that it combines technical extrication skills with advanced medical care of the patient.

From the second a crash occurs the medical wellbeing of a trapped patient will begin to worsen. Approximately 50% of road traffic deaths occur at the crash scene. As we all know, the need for that patient to get to a hospital as soon as possible is essential in increasing the chance of survival. To this end, we tend to invest much time and money developing well-run ambulance services that can carry the patient to a hospital safely and efficiently. What is often forgotten however is the importance of ensuring that we do not harm the patient any further when freeing him from his position in the vehicle.

Extrication rescue should not only be used when it is physically impossible to remove a patient. It should also be routinely used to make

To prevent further injuries various extrication techniques can be applied such as side removal and dash board lift



sure that the patient is not moved or handled in a way that could further compromise his already delicate medical condition. Techniques such as a side and roof removal help to ensure that the patient can be removed from the vehicle in an in-line movement to protect him against aggravation of potentially dangerous spinal injuries. This technique is just one example of how simple procedures can significantly increase the possibility of full recovery from a motor vehicle collision.

Research

Research in the field of extrication rescue, as with pre-hospital care, is extremely limited due to ethical and practical issues. Extrication rescue efforts are even more problematic to prove. What has been shown is that, of the high percentages of deaths occurring in the pre-hospital stage, many can be avoided. Over and above this, many complications resulting in disability in the pre-hospital phase could also be avoided. Unfortunately, we can see a large difference between the likelihood of surviving the pre-hospital stage in more developed countries as opposed to low and middle income countries. Perhaps this can be attributed not only to the lack of emergency medical services in these countries, but also to the lack of expertise and equipment for the extrication of victims from their damaged vehicles.

Another important consideration is the advent of new stronger vehicle constructions on the roads today. To deal with these, rescue tool manufacturers constantly have to develop stronger tools (especially cutters). New Car Technology often introduces the paradox of safety vs. accessibility. In other words, the very construction that makes it possible for a driver of a car to survive the impact may well be the reason why it is impossible for a rescuer to free the victim when working with old, out of date rescue tools.

Basic first-aid training is not enough

In low and middle-income countries, patient transport by ambulance from the crash scene is rare, with most patients being transported by commercial vehicles having been “rescued” by the general public. Some programs are being developed to provide basic first-aid training to the public who would be most likely to come across vehicle collisions. Hopefully this will positively affect mortality. In this regard, it may be worth further investigating whether or not providing more extrication skills to those responsible for the rescue of patients from their damaged vehicles may positively affect mortality. Only providing first aid skills may even prove to be harmful where there is no formal system that can control the extrication process.

Working together as a team

The scene of a motor vehicle collision is not the controlled environment of an operating or consultation room. The rescue scene has many dangers and risks associated with it and these have to be controlled. Extrication rescue does not only provide the knowledge to rescuers on how to safely extricate patients, it also equips them with the know-how to ensure that they do not become injured themselves during the rescue. Extrication rescue techniques also include the various activities that have to be done to ensure that all people who are involved in the rescue scene are working in a safe environment. A perfect example of this is the importance of ensuring that the vehicles battery is disconnected in order to remove the chance of an electrical short circuit starting a fire. In terms of safety the other matter to consider is the fact that many different services have to work together on a rescue scene. The only way to ensure safety for all involved, is for the services to work together as one team, each knowing exactly what their responsibilities are.

APF



LANCIER
Hydraulik

Rescue Tools

LANCIER Hydraulik's new Hose Concept

- Reduced hose diameter for better handling
- Weight reduction of about 50 %
- More flexibility = smaller bending radii
- Safety factor 4:1
- Monocoupling



www.lancier-hydraulik.de



LANCIER Hydraulik GmbH & Co. KG • von-Siemens-Str. 1 • 48346 Ostbevern, Germany • Phone +49 (0) 2532 957080

FIRERAY®

Optical Beam Smoke Detectors



FIRERAY® 5000



FIRERAY® 500R/100R



FIRERAY® 2000



FIRERAY® 2000 EExd

- Low cost protection of large areas
- Very low maintenance
- Quick and Easy Installation
- Over 600,000 installations worldwide
- Variety of models for all applications
- Range of installation accessories available



**FIRERAY® - The leading light
in smoke detectors**



**FIRE
FIGHTING
ENTERPRISES**

9 Hunting Gate, Hitchin
Hertfordshire SG4 0TJ

T +44 (0) 1462 444740

F +44 (0) 1462 444789

E sales@ffeuk.com

W www.ffeuk.com

The British Museum, London protected by FIRERAY®



VFR2000 Intervention helmet for Fire Fighters

Technological evolution
with levels of performance above
the European safety standards

The VFR2000, certificated according to the UNI EN 433 norms, conforms to safety requirements greater than those required by the law.

All the constituent components of the VFR2000 have been studied to permit the maximum protection from blows and radiant heat combined with practicality and comfort.

Available in different colours.

The helmet is set up and certificated to be used with the following optional accessories:

- Standard type devices to protect the breathing
- Devices to protect the neck and shoulders
- Illumination devices consisting of lamp and support
- Radio communication systems
- Refracting bands

You can ask for detailed informative materials.



SICOR SpA - 20016 Pero MI - Italy - Via Pisacane, 23/A - Tel. +39 02 3539041 - Fax +39 02 3539060

E-Mail info@sicor-sureco.it
www.sicor-sureco.it - www.vfr2000.info

Considerations for Selecting Firefighter Protective Ensembles

By **Jeffrey O. and Grace G. Stull**

President and Vice President, International Personnel Protection, Inc.



All of the protective clothing and equipment worn by firefighters makes up an ensemble in which the items must work together to provide overall protection from fireground and other emergency hazards.

A lot of focus has traditionally been placed on garment selection, but more and more attention is now being given to how all the parts of the ensemble – particularly helmets, gloves, footwear, and hoods – work together to provide the necessary level of protection.

In addition, firefighters are increasingly called on to perform a range of duties that includes more than just fighting structural fires. Firefighters are more likely to be involved in providing medical aid, technical rescue activities and other emergencies that do not involve the same set of hazards encountered in combating high heat and flames. Moreover, firefighters are generally the first responders for any kind of event, including terrorist actions that can include chemical or biological agents.

Despite these facts, few firefighters have the luxury of different clothing outfits for responding to varying types of emergencies, with the exception of those on specialized teams. Manufacturers have realized that in order for clothing to be versatile enough to adjust for changing missions, it must be lighter, more comfortable and, most importantly, work together with other parts of the ensemble to provide complete protection under changing circumstances.

This article addresses considerations for selecting each element of the firefighter protective ensemble.

Garments

The protective coat and pants worn by fire fighters represents one of the more complicated choices for firefighters given the wide range of industry choices and customization of the clothing that is possible. Each clothing manufacturer provides a series of designs aimed at providing the firefighter the greatest amount of mobility and comfort without sacrificing protection. The insulative nature of clothing makes clothing design a challenge as multilayered clothing must be used to provide uniform protection of the firefighter against

thermal, liquid, and physical hazards, and unless properly fitting, the clothing inhibits ease of movement and creates stress. The clothing must further include reinforcements, pockets and other features to meet certain functional needs. Lastly, there are a variety of different materials for each layer – outer shell, moisture barrier, and thermal barrier – and each component used on the construction of this gear (reinforcements, reflective trim, hardware, interlinings). These materials offer various tradeoffs between protection and other characteristics, such as weight and flexibility. Choosing among the different designs, features, and materials is a daunting task. There are important considerations that help make this task more manageable.

- 1 All clothing must meet the latest edition of the relevant standard in their region. For example, in North America, the principal standard is NFPA 1971, Standard on Protective Ensembles for Structural and Proximity Fire Fighting. Many of these standards, though voluntary, represent the minimum industry prerequisite for any regional compliance. Moreover, the standards often require third party testing or certification and ensure a higher level confidence when compliance is demonstrated.
- 2 The fire department should conduct a hazard assessment to determine the types and frequency of hazards that its firefighters regularly encounter. This assessment should account for the department's past experience in responding to different kinds of emergencies, prior fatalities and injuries, the relative durability and service life of current gear, and specific operational procedures. From the hazard assessment, the department can determine the relative risk for certain types of hazard and use this information to weigh tradeoffs for certain performance properties associated with the clothing.
- 3 Fire departments should strive to choose protective clothing that is based on three-layer material composites (outer shell, moisture barrier, and thermal barrier), which offer the

best combination of thermal protection and breathability. The department should choose composites that are lightweight and have low bulk but still provide acceptable thermal insulation. Clothing items create physiological stress on firefighters and an appropriate balance between comfort and insulation should be sought. Other considerations are the relative ruggedness or durability of each material layer for continued use and laundering.

- 4 The selection of protective garments should establish specific features related to the safety and operation of the department's firefighters. For example, if firefighters are equipped with a portable radio, a radio pocket should be placed on the coat in a location where it can be readily accessed and not interfere with firefighter tasks. In addition, if experience has shown that the firefighters in a particular department experience burns in a particular area of their bodies then reinforcing materials should be used in those areas.
- 5 Garment selection should consider care and maintenance issues, such as how the garments will be inspected, cleaned, repaired, and stored. Some manufacturers offer different programs to support these department needs for ensuring and extending the service life of garments.

As personal protective equipment, helmets must be designed to meet a variety of protection needs: resistance to impact from falling objects, contact with electrical wire, high heat, and flame exposure – all while remaining light to prevent undue stress on the firefighter.

The required features of the helmet are: a shell, an energy absorbing system (for impact), and a retention system (controlling how the helmet fits to the firefighter's head). Some regions further require retro-reflective/fluorescent trim, ear covers and either a faceshield or goggles (or both). Today's helmet shells are made of thermoset resin composites or thermoplastics. Thermoset resin composites are special high temperature resins to bind the glass and aramid or other fibers together. Thermoplastic helmet shells provide greater impact and penetration resistance compared to fiberglass, and they will hold up through repeated thermal exposures. In contrast, fiberglass helmet shells can better resist chemical exposure and tend to be more stable at high temperatures.

Different approaches are used for absorbing energy. Some manufacturers use foam inside the helmet in combination with the helmet's suspension (the straps forming the head cradle inside the helmet). Other manufacturers have been able to provide sufficient energy absorption through the

The insulative nature of clothing makes clothing design a challenge as multilayered clothing must be used to provide uniform protection of the firefighter against thermal, liquid, and physical hazards, and unless properly fitting, the clothing inhibits ease of movement and creates stress.

Any garment selection should be based on field testing whenever practical. Field tests should support the development of garment specifications. Field testing should be performed to assess whether the clothing will perform as expected and integrate with the other elements of the firefighter protective ensemble.

Helmets

Perhaps the most recognizable piece of firefighting gear is the helmet. The distinctive shape of fire helmets readily identifies firefighters when they're in public view. It is also a perfect example of both how modern technology has worked to provide improved protection and how resistant the fire service is to change.

In the past, helmets were made from leather (in fact, some still are). The vertical ribs along the sides of the leather helmet are actually reinforced seams, which protrude to permit the individual leather pieces to come together. In its time, this helmet was robust and protected firefighters from falling debris and elevated temperatures, which could be expected in higher portions of a room engulfed in flame and heat. Obviously, there have been new designs that make use of high technology composite materials that are lighter and stronger. But even these modern helmets often take on the classic firefighter helmet shape.

suspension system alone. The helmet suspension consists of a headband that fits into the helmet shell through sockets, pins and other hardware in combination with webbing materials to fit the wearer's head. The headband must be adjustable through a ratchet or other means to fit the firefighter's head and interface correctly with the SCBA facepiece and protective hood. Some manufacturer helmets now provide effective interfaces with the SCBA facepiece.

The helmet is secured on the firefighter's head through a retention system that consists of a chin strap, webbing and sometimes a nape device that goes to the back of the head; both are attached to the helmet and provide adjustment through buckles, slide mechanisms, and hook and loop closure. The trim is often placed on the outer shell offers enhanced visibility, which together with reflective trim on garments allows firefighters to be distinguished in poor visibility situations. When present, ear covers extend down from the helmet on the sides and back to provide additional thermal protection to the firefighter head and neck. These covers generally consist of similar materials to those used in the construction of firefighter garments.

In some regions, helmets are equipped with goggles or faceshields as a form of eye and face protection for those circumstances where the

SCBA facepiece is not worn. In some cases, faceshields are used to provide supplemental face protection. However, end users must be careful that these items are also flame and heat resistant if worn on the fireground. In addition, it is important to determine whether the selected item does indeed provide primary eye protection when the SCBA facepiece is not worn.

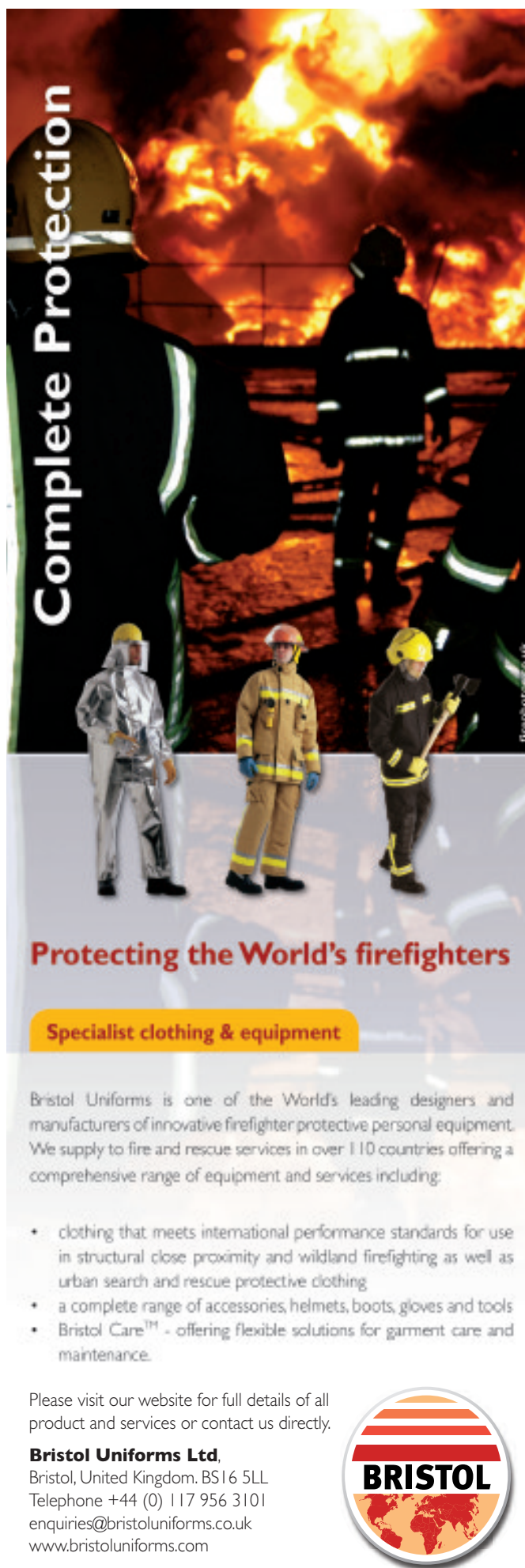
Hoods

Protective hoods have become an integral part of the firefighting ensemble. Minimum performance specifications for hoods are established in some regional standard, sometimes separately or in other cases as part of the garment standard. Intended as an interface item of protective clothing, separate hoods are typically constructed of knitted material with a face opening to fit around the breathing apparatus mask and extensions of the material to remain tucked under the firefighter's coat. Protective hoods generally have a lower thermal insulation requirement than garments, but still have to meet all of the flame and heat resistance criteria typically associated with garment materials. Owing to their knit constructions, hoods are typically "one size fits all" but must be carefully selected to fit properly with the other equipment, primarily the SCBA facepiece. Because hoods are repeatedly stretched over the facepiece and the wearer's head, some hoods quickly lose their shape and can fail to properly protect the firefighter. Features for hoods are relatively simple. These usually consist of: the type of face opening (some hoods are designed to accommodate specific respirator facepieces); the length of the sides, front, and back (sometimes referred to as "bibs"); and ventilation areas. Some heavyweight hood materials use mesh materials in the ear region to permit easier communication, but this feature also reduces protection. One style of hood uses mesh on the top of the hood (sitting underneath the helmet) to provide a means for heat to escape.

When hoods are integrated as part of the garment, the hood can take on the same material layering as provided in the garment, or may use fewer layers given the required interface with the SCBA facepiece and hood. These hoods generally offer more protection than standalone hoods, but the additional bulk can create more stress on the firefighter.

Gloves

Since the hands are one of the more difficult areas of the body to insulate, hand burns occur much too frequently in the fire service around the world. It is difficult to achieve the similar insulation in gloves as garments because the when relatively bulky materials are used, hand function is severely impaired. Glove manufacturers generally have to rely on glove designs that permit maximum dexterity and hand function. The majority of fire service gloves are made with leather outer shell materials. When properly treated, leather provides a rugged, durable external layer with adequate flexibility. Several newer gloves use relatively strong aramid and other materials that are generally much lighter than leather but may not offer the same levels of insulation. Many gloves are also outfitted with moisture barrier layers that function the same way as the moisture barrier in garments. However, this layer is generally created as an insert



Complete Protection

Protecting the World's firefighters

Specialist clothing & equipment

Bristol Uniforms is one of the World's leading designers and manufacturers of innovative firefighter protective personal equipment. We supply to fire and rescue services in over 110 countries offering a comprehensive range of equipment and services including:

- clothing that meets international performance standards for use in structural close proximity and wildland firefighting as well as urban search and rescue protective clothing
- a complete range of accessories, helmets, boots, gloves and tools
- Bristol Care™ - offering flexible solutions for garment care and maintenance.

Please visit our website for full details of all product and services or contact us directly.

Bristol Uniforms Ltd.
Bristol, United Kingdom. BS16 5LL
Telephone +44 (0) 117 956 3101
enquiries@bristoluniforms.co.uk
www.bristoluniforms.com



to fit inside the glove with minimum extra material to minimize glove bulk, particularly as many of these materials do not have elastic properties. Gloves further include linings for additional thermal insulation and hand comfort. These linings may absorb sweat, but more important they function to limit heat transfer to the hand. It is important that thermally stable materials be used because under extreme circumstances, melting of the lining material can cause severe injuries to the hand. Additional layers may be used inside or on the exterior of gloves. These materials serve as physical reinforcements to high wear areas or add insulation in vulnerable areas (such as on the back of the gloves). Gloves are further outfitted with a gauntlet or knit cuff. In either case, the glove should be designed to minimize the potential of embers or other debris from entering the glove.

In choosing gloves, fire departments should consider the relative protection features of the gloves versus the impact for firefighter undertaking required tasks. Overly insulated gloves, while being very protective, may create other hazards when the firefighter is unable to operate a radio or

an internal moisture barrier to provide a liquid tight envelope around the wearer's foot. In contrast, rubber footwear is either molded or made by gluing. This material must also consist of flame and heat resistant material, but has the advantage of being liquid proof on its exterior. Whether leather or rubber is used as the outer material, there are several other layers or features that must be incorporated as part of firefighter footwear. A lining is provided to create insulation. These linings may comprise several layers or be based on a single layer of relatively thick material. Linings have to be comfortable to the skin and should wick moisture away from the feet. The outer sole is often a separate molded part of the footwear. Its design has to account for traction, abrasion resistance, and puncture resistance. Some footwear uses a metal plate above the outer sole to prevent nail punctures. Other footwear hardware includes metal or composite toe caps and metal tarsal guards. These features serve to limit footwear injuries due to impact and compression from falling objects. Footwear may also include different types of inner soles added mainly for comfort.

It is important that gloves demonstrate the necessary durability and in particular that the liner stays in place through the glove's service life. Gloves should maintain their liquid protection performance over their expected life as well.

Jeffrey O. Stull and **Grace G. Stull** are President and Vice President of International Personnel Protection, Inc., which provides expertise on the design, evaluation, selection and use of personnel protective clothing, equipment and related products to end users and manufacturers. International Personnel Protection, Inc. has conducted numerous studies for effectiveness and performance of protective clothing and equipment. Mr. and Mrs. Stull are currently members of several NFPA Technical Committees for Fire and Emergency Services Protective Clothing and Equipment and other groups for protective clothing and equipment. Both Mr. and Mrs. Stull participate in the government's Interagency Board for Equipment Standardization and Interoperability. International Personnel Protection, Inc. is considered one of the leading sources of expertise in the field of personal protective equipment.

use equipment effectively. Gloves should be offered in a wide range of sizes to permit firefighters selecting the specific size that will provide the best fit. Gloves that are too tight result in less insulation and may fail in use. Gloves that fit too loosely may cause hand function problems. Like any of the ensemble items, gloves should meet available regional standards, but additional criteria may be necessary to guarantee the level of needed protection. It is important that gloves demonstrate the necessary durability and in particular that the liner stays in place through the glove's service life. Gloves should maintain their liquid protection performance over their expected life as well.

Footwear

Firefighter preferences for the type of footwear worn will vary with their experience and their expectations for footwear. Generally, the feet are one the best protected areas of the firefighter ensemble. Yet, improperly fitting footwear or footwear without the appropriate features can lead to serious injuries. The two main types of footwear are leather and rubber. Leather boots tend to be designed like regular work boots and may be supplied with laces and other devices that make this type of footwear indistinguishable from standard industrial boots. Yet these boots like their glove counterparts must be constructed of materials that are flame and heat resistance with the combination of layers offering appropriate levels of thermal insulation. In order to gain the liquid holdout properties deemed highly desirable in the fire service, these boots must be constructed with

Many firefighters debate the merits of leather and rubber footwear. Firefighters that like rubber footwear point to its ruggedness and certainty of liquidproof performance. Those in the fire service that prefer leather footwear indicate that overall fit of leather, particularly in providing ankle support. As with other firefighter ensemble items, footwear should be chosen on the basis of its relative performance, durability, and comfort. Look to specific needs identified in your assessment of the hazards to rank or rate specific qualities or features that will be important to your department.

Overall Selection

Certainly the time required to adequately select and purchase fire fighting protective ensembles can stretch the resources of any department, large or small. Use of a selection committee can help to spread responsibilities. Another method, especially for smaller departments is to pool resources with adjoining or neighboring departments. Not only does this approach reduce the required time for an individual department, it increases purchasing power because a larger order will get a better response from industry compared to a relatively small order. It's also a good idea to check references as you would with any major purchase to see how other departments have fared with different PPE items, materials and designs. Don't limit this reference check to references provided by the manufacturer. Ultimately, your firefighting protective ensemble must reflect your department's needs to provide high levels of protection, mobility and comfort.

APF

Making firefighting **safer!**



PAB Personal Protective Equipment

firefight series

Made of
composite fiberglass

FIRE HT 04 Composite

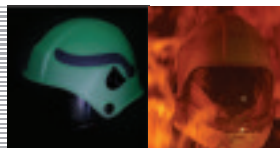
We are introducing the firefighter helmet of tomorrow. It is designed to protect the head in the most extreme conditions. Development and implementation of new composite technology in combination with established design enable full protection even at shorter (flash over flames) temperature exposures, reaching up to 1000 °C. These advantages are rounded up with extreme lightweight (1.200 g) and such design that supports a wide selection of compatible accessories. Structural firefighting has never been safer.



PAB Personal Protective Equipment
Most 26, 52420 Buzet – Croatia

tel: +385 52 662 662
fax: +385 52 662 254

info@pab-buzet.com
www.pab-buzet.com



rescue ('reskju:) vb. -cues, -cuing, -cued, (tr.) 1. to bring (someone or something) out of danger, attack, harm, etc.; deliver or save.

Before saving others, you must protect yourself.

Introducing SE40, the world's first positive-pressure breath-responsive respirator, approved according to the new NIOSH CBRN-PAPR standard.

This means exceptional protection and easy breathing even at hard work.

The SE40 works on the demand principle, just like a breathing apparatus: it opens the air flow during inhalation, and blocks it during exhalation. Among other advantages, this means a considerably longer filter life.

The SE40 CBRN respirator has been tested for a wide variety of warfare agents, and is exclusively designed for emergency response.

Wherever your job takes you, SE40 comes to the rescue.



All-in-one stackable kit bag,
always at the ready



theseagroup.com

BUY A PRODUCT. GET A SYSTEM.

Safety Equipment Australia Pty Ltd
35/1 Jubilee Avenue, Warriewood
NSW 2102 AUSTRALIA

Tel.: +61 2 9910 7500
Fax: +61 2 9979 5364

sea.australia@theseagroup.com





DIM Instrument Training

– the Achilles's heel in fire service CBRN response?

By John Saunders

Argon Electronics

In October 2008 the UK National Audit Office (NAO) published a document titled "New Dimension – Enhancing the Fire and Rescue Services' capacity to respond to terrorist and other large scale incidents".

The report describes how the ongoing New Dimension programme, set up in the wake of the 9/11 US terror attacks, includes a remit to extend the capacity of Fire and Rescue Services (FRS) in England to deal with the consequences of terrorist use of weaponised chemical or radiological materials by provision of such as Incident Response Unit vehicles for transporting new mass decontamination modules. The considerable achievements made in progressing towards this end have included the delivery of 17 dedicated Detection, Identification and Monitoring (DIM) vehicles, but the spectrum of specialist DIM devices carried aboard present a difficulty in their

own right, which is replicated down through the wider provision of the more basic detectors across the FRS., and is alluded to in the NAO report where it notes that "sufficient firefighters have been trained for all equipment types except the Detection, Identification and Monitoring capability." The FRS in England are not alone in facing this issue.

At the heart of the training dilemma is the fact that the increasing numbers of DIM instrument types being deployed around the world all share a common feature: they are designed to respond to specific and highly dangerous substances and materials that are unacceptable for use in many

Simulated vehicle contamination during FRS detection training using ultrasound



training environments, and they are designed to exclude, as far as is possible, any alternative stimuli. A simple chemical detector may be able to determine the presence of a nerve agent, and more advanced technologies may be able to identify that substance as, for example, Sarin. Similarly a radiation dosimeter or survey meter may detect the presence of harmful radiation at the scene of an incident, and a more advanced spectrometer may be able to provide the name of the radionuclide responsible for the emission, but in either instance you would not necessarily wish to expose trainees and the environment to such hazards. So how then to learn the correct use of DIM equipment in both a realistic and safe manner?

The first issue to resolve is how to remove the hazardous substances defined by the threat scenario from the setting for the training, and replace them with something that will closely imitate the dynamic characteristics and material properties of the agents of concern, whilst at the same time eliminating all risk of harm or damage to trainees, their equipment, and the wider population and environment.

For FRS instructors the use of an encoded ultrasound transmitter could provide the first part of the solution. Compact and power-efficient transponders can be pre-programmed by an instructor to represent, for example, a specific chemical weapon agent (CWA) such as Sarin, a generic class of CWA such as a 'nerve' agent, a toxic industrial chemical or even a chemical that

might, as an 'interferent', cause a real chemical detector to display a 'false positive' response. With a range of digitally controlled variable emissions the 'concentration' of the simulated chemical source may be adjusted to vary the strength of the detectable signal from around 1 to 30 meters, and just as with a real chemical vapour, the surrounding environment may be brought into play in replicating the desired characteristics of a gas in response to, for example, a closed door or a strong wind.

Similarly, these ultrasound devices can also be used to represent gamma radiation emitters, either as a directed energy source or, by use of a 'spreader' on the transponder, as a 360° hotspot release. The consistent signal emission enables teaching of such as inverse square law, whilst the programmable design of the units also permits simulation of specific isotopes.

Whether used to simulate either a chemical or radioactive hazard, overlapping deployment of multiple 'sources' programmed with the same code enables repre-

sentation of weapons effect over larger areas, and could also be used, for example, to 'mask' a secondary and alternatively programmed simulation source. The sources can be used to represent a multitude of different CBRN scenarios, from contamination of vehicles that have driven through 'hot' zones by concealment of the ultrasound unit in a wheel arch, to their concealment in debris in creation of the aftermath of a radioactive dispersal device (RDD; a 'dirty bomb') detonation, and furthermore, they can be used inside buildings or outside in any weather or climatic conditions without variation in their performance over repeated exercises.

For training in the detection of either weaker chemical point sources or short range radioactive alpha and beta emitters permanent electromagnetic pouch sources provide a second means of replacing the real threat materials with a safe simulation alternative. Supplied in a range of strengths to suit the particular parameters of the required scenario, they can be discretely concealed on personnel for decontamination training or used to familiarise students with close proximity search techniques.

Finally, a third technology is used for specialist radiological contamination, cross-contamination and decontamination training where solid and liquid radioactive materials are imitated using a safe fluorescent simulant.

The selection of the most appropriate type of simulation technology from those described above will of course depend on the type of DIM task that

is to be taught, and the form of the simulation detector will correspondingly be determined by the type of DIM instrument that is employed in response to specific tasks and individual circumstances. Simulation instruments fall into two basic design categories (the first being where a detector is wholly substituted by a simulator, and the second where a component probe is simulated which can be used with the real primary detection instrument), but for the fire fighter responsible for the instruction of CBRN responders, the advantages of using such systems will not so much be appreciated for the differentiation between systems and sources, but for their commonality, as will be seen below.

Argon simulation instruments are well known for the degree of fidelity they provide in terms of replicating the functions and features of specific DIM instruments, and for the level of equipment specific competency engendered by their use. Instructors have also come to understand the value of being able to teach remedial action in response to the simulated instrument faults and failures they are able to remotely create during a training session, and the ability to provide comprehensive analysis of a user's operation of an instrument during after action review of student errors has enabled the assurance of auditable consistency to standards of instruction. However, one of the increasingly appreciated features of these systems is their inter-operability.

As already noted, there is an increasing reliance on technology in the response to CBRN attack, and the range and complexity of DIM equipment presents a growing burden on the training resources of fire service organisations, not least when multiple individual DIM instruments are used in conjunction with each other to provide a comprehensive series of procedural initiators.

A clear example of this can be seen in the use of a range of DIM instruments for the detection and identification of potential CWA's. Whereas, in days gone by, a front line fire service responder might be grateful to possess even a single type of instrument, it is increasingly the case that he or she will have a number of technologies at their disposal at the site of a terrorist inspired chemical release. An ion mobility spectrometry (IMS) based device, such as the Smiths Detection LCD3.2e lightweight chemical detector, might provide initial warning of the presence of a generic class of potentially lethal gas. Another IMS-based device, such as a Bruker RAID-M100, might then be used to provide agent identification of the threat at hand, and, in order to provide the confirmatory assurance of a secondary technology, a Proengin AP4C detector might be simultaneously deployed in reflection of its employment of flame photometry (FP) as its analytical mechanism. Once the hazard has been assessed to be of sufficiently convincing concern, detailed analysis of the agent of concern would typically be sought, and in this the Inficon HAPSITE® family of gas chromatograph/mass spectrometer systems is a typical example of equipment employed by a number of fire services around the world. So far, so good, and all good practice. However, the difficulties that might potentially reduce or even nullify the combined benefits of such a complete DIM equipment suite begin with the operator who has not been sufficiently trained in the



Simulated CBRN casualty contamination using electromagnetic sources

complementary use of his tools.

Having determined that, for reasons of safety and cost alone, 'live agent' training is not a viable means of providing DIM instrument training for the increasing numbers of FRS personnel now required to be proficient in CBRN response, a common reaction is to turn to use of a chemical stimulant in conjunction with use of real chemical detectors and identifiers. Such chemicals carry intrinsic risks in their own right, but, in terms of multi-instrument DIM training, the most serious drawback is that there is no guarantee that they will create a realistically consistent response across the range of the deployed devices. For users of Argon simulation systems these concerns have been removed.

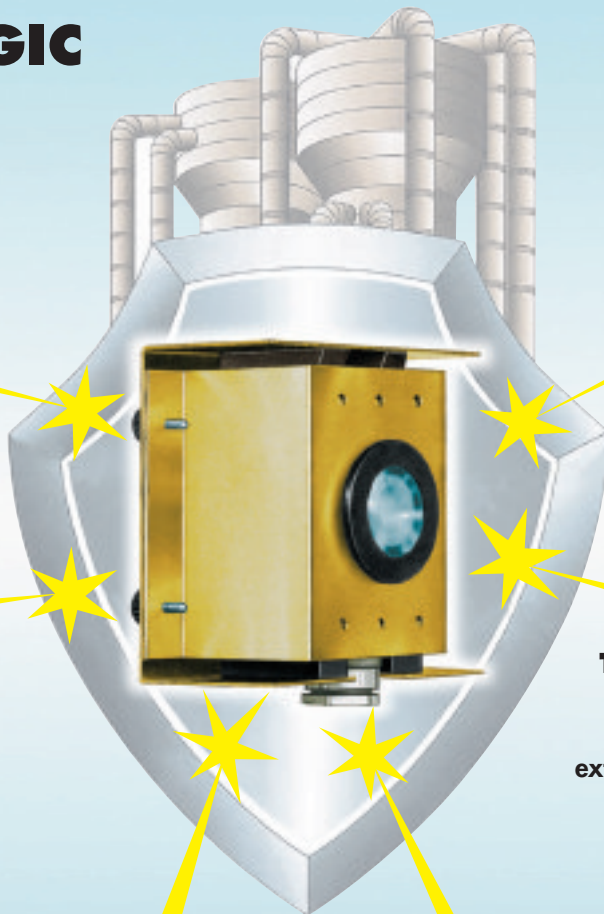
By appropriate programming of the ultrasound simulation sources described above, and, using the same example for the DIM equipment, by substitution of a LCD-SIM, RAID-M100-SIM, AP4C-SIM and HAPSIM-P (a simulation probe that works with the real HAPSITE® instrument) that all respond to the same common technology platform, instructors are able to recreate the exact responses of each of the individual real instruments as would be experienced in the context of their co-ordinated use.

In addition to enjoying the benefits of enhanced control over individual instruments during a training session, and being able to objectively record and report on the operational skills of individual operators, approved training scenarios can be repeated with unwavering accuracy, or rapidly adjusted to meet changing priorities. For those holding the purse strings benefits will include a removal of the expense of consumables, recalibration, and the eventual early replacement associated with running real instruments, and, most importantly, for those FRS responders whose task it will be to risk their lives in the protection of the public following a CBRN attack, they will be able to concentrate on the task at hand with a confidence in their equipment that is born of experience.

APF

CONTROL LOGIC Spark detector

designed for
dust collection
systems
to protect
storage silos
from the risk
of fire.



Sparks fly at high speed.

They travel at a hundred kilometres per hour along the ducts of the dust collection system and reach the silo in less than three seconds

The CONTROL LOGIC SPARK DETECTOR

is faster than the sparks themselves. It detects them with its highly sensitive infrared sensor, intercepts and extinguishes them in a flash. It needs no periodic inspection.

The **CONTROL LOGIC** system is designed for "total supervision". It verifies that sparks have been extinguished, gives prompt warning of any malfunction and, if needed, cuts off the duct and stops the fan.

ISO 9001

20137 Milano - Via Ennio, 25 - Italy
Tel.: + 39 02 5410 0818 - Fax + 39 02 5410 0764
E-mail: controllogic@controllogic.it - Web: www.controllogic.it



CONTROL LOGIC s.r.l.



BETTER TO KNOW IT BEFORE

Eye is faster than nose.

In the event of live fire the IR FLAME DETECTOR responds immediately

CONTROL LOGIC IR FLAME DETECTOR

the fastest and most effective fire alarm device
for industrial applications

**IR FLAME DETECTOR
RIV-601/FA
EXPLOSIONPROOF
ENCLOSURE**

For industrial applications indoors or outdoors where there is a risk of explosion and where the explosionproof protection is required. One detector can monitor a vast area and responds immediately to the fire, yet of small size.



**IR FLAME DETECTOR
RIV-601/F
WATERTIGHT
IP 65 ENCLOSURE**

For industrial applications indoors or outdoors where fire can spread out rapidly due to the presence of highly inflammable materials, and where vast premises need an optical detector with a great sensitivity and large field of view.

Also for
RS485 two-wire serial line

ISO 9001

20137 Milano - Via Ennio, 25 - Italy
Tel.: + 39 02 5410 0818 - Fax + 39 02 5410 0764
E-mail: controllogic@controllogic.it - Web: www.controllogic.it



CONTROL LOGIC s.r.l.

*Pic courtesy of 3M
Technologies (Singapore)
Pte Ltd*



Protection that Respects the Environment

Clean extinguishing agents used in modern fire protection systems are more environmentally responsible than those in use a decade or so ago, but some are still causing concern. Kurt Werner, Environmental Affairs Manager at 3M Company, examines their limitations and introduces a new agent that represents an environmentally sustainable technology.

By Kurt Werner

for Electronic Markets
Material Division,
3M Technologies
(Singapore) Pte Ltd

For many years, halon was the fire extinguishing agent of choice in a wide variety of applications and particularly those where it was important to minimize damage to valuable assets (e.g. electrical and computer equipment, museum artefacts, ships engines etc). However, in the 1980s, it started to become clear that halon had enormous potential for harming the Earth's ozone layer. In fact, it not only has one of the highest ozone-depletion potentials of any chemical in use but has a high global warming potential, as well.

As a result, the production of halon was phased out in the early 1990s under the terms of the Montreal Protocol. Also, for the first time, environmental regulators were direct participants as members of committees dealing with fire protection codes and standards development. The initial effect of this move in most countries was that

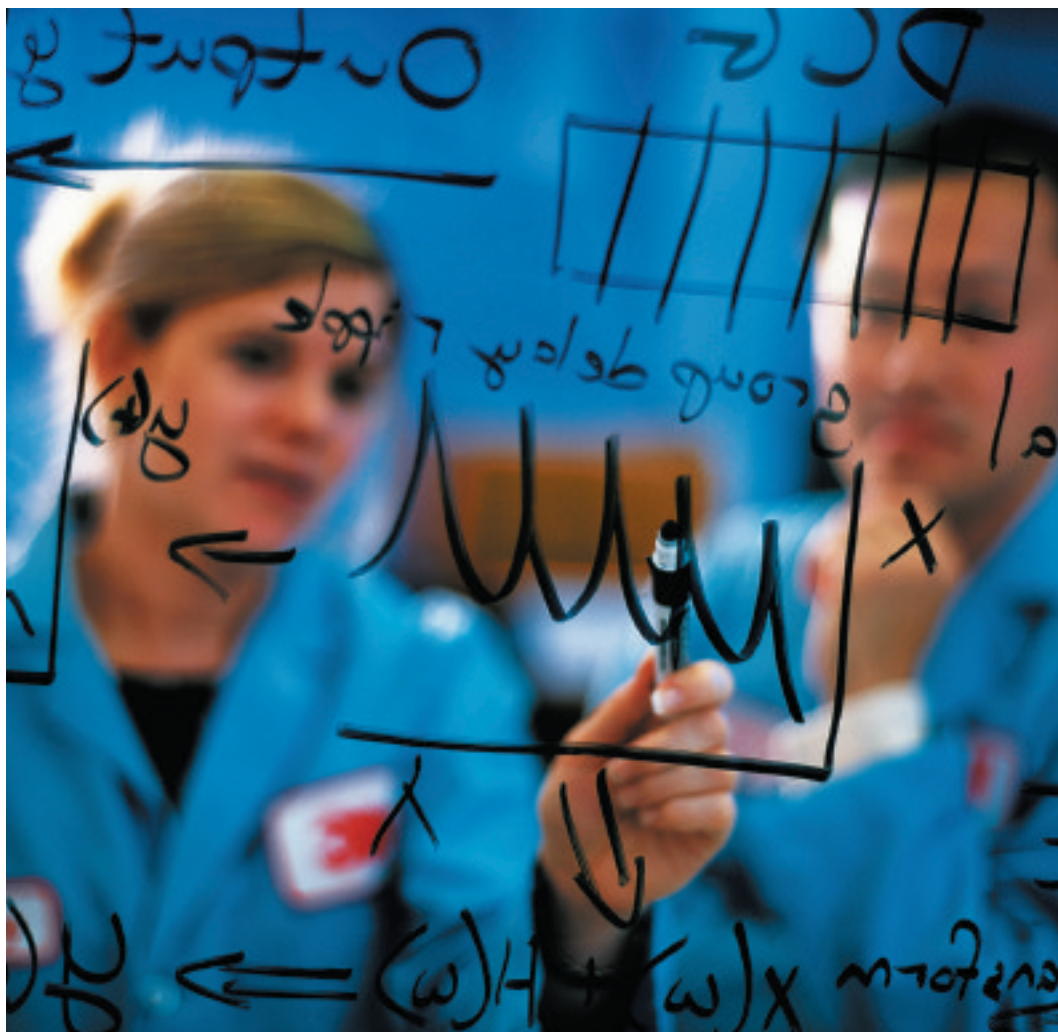
existing halon installations could only be recharged using recycled halon. However, in many parts of the world including for example, the EU, the use of halon-based fire protection systems is now illegal except in very specialized, critical applications.

For the fire protection industry and, indeed, for specifiers and users of fire protection, the phase-out of halon created a problem, as it was a very convenient and effective agent. Clearly, a replacement had to be found, and this resulted in the development of hydrofluorocarbon agents (HFCs).

There's no doubt that, in environmental terms, HFCs were a step forward. Their ozone depletion potential is zero but, unfortunately, ozone depletion is not the only item on today's environmental agenda – global warming is an equally important issue.

The global warming potential of Halon 1301 is an astonishing 7,140 times that of CO₂, the most

Pic courtesy of 3M Technologies (Singapore) Pte Ltd



common greenhouse gas, while that of the HFC most commonly used in fire protection is 3,220 (2007 IPCC assessment for HFC-227ea). Further, the atmospheric lifetime of halon 1301 is 65 years, and that of HFCs used in fire protection about 30 years. So, with HFCs, the negative footprint on the environment is still substantial.

In fact, the high global warming potential and atmospheric persistence of HFCs are already

training, inspections, testing, and reporting. These regulations are based on a technical assessment carried out in 2001, which is due to be updated in the near future. It is possible that, based on the availability of new alternatives since 2001, this update will tighten the restrictions on HFCs in fire protection.

Measures addressing the use of HFCs are also being drafted in the USA. An early action

With environmental characteristics as desirable as this, the prospect of Novec 1230 fluid being restricted in use is negligible. Nevertheless, for specifiers who desire reassurance, 3M backs its technology with its unique Blue SkySM Warranty.

leading to concerns about whether their use will continue to be permitted. It is entirely possible that HFCs may follow halons in being restricted, or even banned, in the not-so-distant future.

The first steps toward this can already be seen in the F-Gas Regulations that have recently been introduced in Europe. While these regulations stop short of banning the use of HFCs, they do impose requirements specific to HFCs for technician

identified under the California Global Warming Solutions Act of 2006 includes a consideration that, from 2012, all new fire protections systems in California must use an agent with a GWP below a minimum threshold level. A proposal from the California Air Resources Board (CARB) reflects the regulator's concern that, while emissions from this sector are currently low, they are growing quickly and the emission potential of an ever growing

installed base represents a significant future liability. The only means to limit this future liability is to reduce the use of HFCs.

These concerns create two big issues for those who are currently specifying or purchasing fire protection installations.

The first is that most principled organisations have strong environmental policies and are unlikely to specify fire protection agents that have poor environmental credentials. Indeed, in countries where regulatory requirements are currently less stringent, such policies will likely be the biggest driving factor for the adoption of environmentally sustainable fire protection.

The second issue, or risk, is that future bans or restrictions may mean that an HFC system installed today would need to be replaced long before it has reached the normal end of its useful life. The costs of carrying out this replacement work could be substantial. California's proposal also includes a provision to enhance inspections of, or replace total flooding fire suppressant systems that contain an agent with a GWP above a specified threshold.

The shortcomings of HFCs led 3M to search for a fire protection agent with environmental characteristics superior to those of any agent previously available. The result is the introduction of 3M™ Novec™ 1230 Fire Protection Fluid, which has been developed with the clear objective of providing a technology that offers a viable long-term solution for special hazards fire protection.

In order to assess how well this objective has been met, let's start by looking at the environmental properties of Novec 1230 fluid. Like HFCs, Novec 1230 fluid has zero ozone depletion potential, but its key differentiating attribute is its global warming potential of just one, a dramatic reduction from 3220 for the most common HFC. In addition, Novec 1230 fluid's atmospheric lifetime is only five days, in contrast to a period of about 30 years for HFCs.

With environmental characteristics as desirable as this, the prospect of Novec 1230 fluid being restricted in use is negligible. Nevertheless, for specifiers who desire reassurance, 3M backs its technology with its unique Blue SkySM Warranty. Under the terms of this warranty, if Novec 1230 fluid is banned from or restricted in use as a fire protection agent because of its ozone depletion or global warming potential, 3M will refund the price of the fluid. The warranty is valid for 20 years.

Novec 1230 fluid offers a very wide margin of safety and, therefore, can be used in staffed areas. For most applications, it is typically used at a concentration of between 4% and 6%, but its no observed adverse effects level is 10%. Therefore, its safety margin is between 67% and 150% – the widest margin of safety of any viable chemical replacement for halon.

Unlike most other extinguishing agents, Novec 1230 fluid is not stored as a pressurized gas but as a liquid, which instantly dissipates to form a gas when it is discharged from a properly designed system. Storage in liquid form has many benefits; Novec 1230 fluid can be easily transported in bulk – even by air. Further, refilling a system after discharge is much simpler than working with bulk pressurized gas supplies and much more convenient than sending the cylinders off site. Finally, cylinders containing Novec 1230 fluid occupy



Pic courtesy of 3M Technologies (Singapore) Pte Ltd

significantly less space than cylinders of CO₂ or inert gas systems. All of these benefits are particularly significant when the product is used in offshore applications.

With less impact on the environment, favorable handling characteristics, and excellent extinguishing properties, Novec 1230 fluid is unmatched. It is suitable for delivery by flooding, and its non-corrosive, non-conductive properties allow it to be used to protect sensitive equipment such as telecommunications and computer installations.

Novec 1230 fluid is a clean extinguishing agent. It evaporates immediately and, unlike foams and

**Unlike most other
extinguishing agents, Novec
1230 fluid is not stored as a
pressurized gas but as a
liquid, which instantly
dissipates to form a gas
when it is discharged from a
properly designed system.**

powders, it leaves no residues. This means time-consuming clean up operations are eliminated, minimizing the delay before the system can be returned to service.

With concerns over HFCs growing rapidly, specifiers need an environmentally sustainable alternative that will not only help address the risk of an installation's early demise under regulatory pressure, but which will also complement the progressive environmental policies of their businesses. That alternative is Novec 1230 fluid, which has already demonstrated its value around the world in applications as diverse as shipboard installations, data centres and oil rigs.

Leading OEMs that offer systems incorporating Novec 1230 fluid include Kidde, a division of UTC Fire & Security; Siemens Building Technologies; Tyco Safety Products, a division of Tyco Fire & Security and SEVO Systems.

APF

For more information about
3M™ Novec™ 1230 Fire
Protection Fluid visit
www.3M.com/novec1230fluid



INTERNATIONAL FIREX

11 - 14 May 2009
NEC Birmingham

Don't forget to attend the
fire industry's leading event



International Firex offers you the solution to all your fire prevention and protection needs when it returns to the NEC Birmingham from 11-14 May. The show is awash with features including the latest products from leading manufacturers, free seminars and major new highlights such as The FIA Learning Zone and the LPCB Red Book Pavilion.

So let's start talking fire protection today, register free at www.internationalfirex.co.uk

In association with:



Organised by:



United Business Media

11 - 14 May 2009. Hall 3. NEC Birmingham

Suppression Mode ("ESFR") Sprinkler Heads: since 1988, it has made sprinkler protection for warehouses more versatile and effective. © 2009 FM Global. Reprinted with permission. All rights reserved



Protecting Warehouses - One Sprinkler Size Fits All?

A sprinkler pipe dream?

By Brendan MacGrath

Manager, International Standards Group, FM Global

A truly flexible, one-size-fits-all, warehouse sprinkler system that's cheaper to install and provides better protection? A "pipe dream"? Well, for those who design, construct, own, lease and operate storage facilities, it's certainly a very attractive proposition.

Traditionally though, the message to the aforementioned stakeholders has been, "no; one size does not fit all!" and that sprinkler systems must be designed according to the many facility-specific conditions present at the time of its design. In addition, to ensure they remain capable of adequately protecting a facility during its life-time, periodic assessments are needed to assess the impact of any changes to the types of goods present and the way in which they are stored. When a sprinkler system needs to be adapted to such changes, the resulting modifications and reinforcements can result in significant costs and disruption to a warehouse's day-to-day operations.

This article examines the recent and possible

future developments in sprinkler technology which are helping to make fire protection in storage facilities a far easier and less-costly proposition. And, whilst these changes don't mean we've achieved the utopian "one size fits all" sprinkler system, the greater flexibility, ease-of-design, and lower costs that these advances allow certainly represent major progress towards this ideal.

The challenging past

Imagine a garden-furniture manufacturing company who teams up with several business partners, such as a chain of DIY stores, a logistics firm and a property developer, to build a warehouse in Europe to store its products which will supply a

*In-rack sprinklers:
superior protection, but
at a cost and reduction
in flexibility.*

© 2009 FM Global.
Reprinted with
permission. All rights
reserved



developing market with great potential. The parties involved take a strategic decision to protect this important facility, key to achieving their business goals, with a fire sprinkler system. Now let's also imagine this were twenty years ago. Chances are the goods would be mostly metal or wooden products stored in cardboard packaging. Data on the many variables needed to specify the system is gathered: ceiling height, the storage arrangements, aisle widths and the combustibility of the multiple products stored. Ultimately, the property insurance carrier and design consultant put forward a design based on a ceiling-only sprinkler system. Agreement and approval by all the stakeholders, including the local authorities, is obtained and the protection is installed. The warehouse is built and starts to operate successfully.

Five years later though, a new product line has been developed. Built from more fragile components such as glass, it requires the use of minor amounts of foamed-plastic protective packaging. In concert with the insurance company, it has been determined that this change renders the existing sprinkler system inadequate, thus placing the facility at significant risk. At appreciable cost, in-rack sprinklers are installed on the understanding that this new product line can now only be placed in these specially adapted racks. Another five years later and a new all-plastic weatherproof range of goods is launched. In order to ensure that the product can get to market, the sprinkler system needs to be upgraded once more, requiring more racks to be provided with a line of in-rack sprinklers. A further five years passes and, driven by environmentally-friendly market expectations, the cardboard packaging is replaced by recyclable plastic containers. Once again, the sprinkler system which was originally designed to protect metal and wood products in cardboard on wood pallets (a "Class III" product), needs to be upgraded to protect the higher commodity hazard of exposed unexpanded plastics. This is certainly not a happy story for anyone concerned – the inflexibility, the delays in product launches, the cost, the time etc. Without doubt, many of the stakeholders involved will have developed a

negative perception of fire sprinkler systems. Some might understandably and rhetorically ask, "weren't these sprinklers supposed to support my business goals by protecting my premises against the fire hazard, not hamper them?"

Why so complicated?

So why did stories like this one happen? Basically, when rack storage systems were first developed in the 1960s, the only fire sprinklers available to researchers and those who developed standards, were smaller orifice size sprinklers. While such sprinklers had proven track records in manufacturing properties, their application to the far greater fire challenges posed by storage was another matter. Instead of the relatively low water pressures required to protect say, a textile mill, these same sprinklers were now required to operate at far higher pressures in order to protect high-piled storage of more combustible products. As a consequence, private water supplies consisting of a pump and tank were required, and/or the installation of in-rack sprinkler systems, all of which came with a very significant price tag. There was, therefore, a strong economic argument and incentive for designing a sprinkler system which required as low a pressure as possible in order to keep its cost to a minimum. This led to the development of design standards which required the consideration of multiple variables; eight classes of products, each representing an incrementally higher fire hazard, which in turn requires increased water pressure and therefore, greater cost. This resulted in complex design standards (FM Global's Storage Protection Data Sheet 8-9 contained approximately 37,000 individual protection options), which, as illustrated in the earlier example, can result in inflexibility and its costly consequences for a facility, even when undergoing relatively minor operational changes.

Simpler, cheaper and more versatile

In order to make fire sprinkler systems more cost-effective for the owner and versatile for the end-user, FM Global has made significant efforts to simplify the protection options contained in its

Data Sheet 8-9 “Storage Of Class 1, 2, 3, 4 and Plastic Commodities”. The changes made include simpler and cheaper in-rack systems, the elimination of interpolation and adjustments, the elimination of steel column protection and a simpler choice for the sprinkler temperature rating. FM Global’s efforts don’t stop here, however; in future editions of this standard we aim to see simpler design criteria which mostly only depend on the sprinkler type, the ceiling height and a broader range of commodity hazards. The previously mentioned 37,000 permutations could potentially be reduced by up to 90%.

Central to achieving these significant advances has been the research carried out by industry and the resulting development of innovative fire sprinkler products. These new types of sprinklers have greatly simplified the design and reduced the cost of fire protection. The introduction of Early Suppression Fast Response (ESFR) sprinklers in the 1990s (referred to nowadays by FM Global as Suppression Mode (SM) sprinklers) failed the advent of this simplification and constituted a major step forward in the development towards a far more versatile and cost-effective sprinkler system. In one fell swoop, a SM sprinkler system design could protect all eight commodity classes, and in most cases without requiring in-rack sprinklers. Compared to the more traditional sprinkler options, water duration and fire hose demands were halved producing significant savings. Nevertheless, flow and pressure requirements were not insignificant, typically requiring substantial pumping capacity and the associated large diameter pipe work.

The fire sprinkler protection options available now include sprinklers which can provide adequate protection for the full range of commodities stored, and at a lower cost.

Now twenty years later in 2008, several new sprinkler heads have been launched which help to further reduce the cost and increase the flexibility of fire protection. These new products also provide justification for significant simplification of design standards. These new options, low-pressure pendent storage sprinklers, can protect commodities from classes I through IV combustibles such as cartoned plastics, at pressures up to 70% lower, thus reducing the piping and water supply size. The overall cost savings could be as much as 20%. As these sprinklers can protect higher combustibility commodities at low pressures (e.g. as low as the sprinkler’s minimum end head operating pressure), there is no longer any incentive to sub-divide the commodity classes to achieve lower operating pressures, as was required with the traditional sprinkler types.

Now let’s imagine the garden furniture warehouse story is a current-day situation in an emerging-economy country where the indigenous market is experiencing an increasing demand for this kind of commodity. The fire sprinkler protection options available now include sprinklers which



The Next Generation: Low-pressure, Pendent Storage Sprinkler heads. Launched in 2008, these sprinklers make warehouse protection even more versatile and cost-effective. Reprinted with permission of Viking Corporation

can provide adequate protection for the full range of commodities stored, and at a lower cost. This new facility has essentially been able to “leap-frog” from a position of no available options per local standards, directly to the latest R&D based technology, hence gaining very significant benefits from both a flexibility and cost standpoint.

Furthermore, the company elects to establish manufacturing operations in the region in order to supply both its local and international markets, and benefit from lower costs. These production and storage facilities, stretched and scattered across borders and time zones, form a global supply chain which needs to be highly resilient. Now, thanks to the advances in sprinkler technology which allow cheaper, more flexible and versatile fire protection, the provision of sprinkler protection in order to protect the company’s future from the risk of fire, is a far more palatable option.

If we now translate these advantages to industry in general, they help to significantly reduce the cost of providing sprinkler protection. This decreased burden makes for a stronger cost-benefit case for their installation, which could ultimately have a bearing on building regulations. Fire sprinkler systems can now be installed for as little as 1% of the overall cost of a new industrial establishment and at far less than the price of other building components e.g. carpeting. Fire sprinkler systems serve to protect the value which such facilities create, both for the enterprise and for society as a whole. Installing sprinklers can prevent the potentially catastrophic and headline-making fire incidents, such as the fire in a toy factory in Thailand in the 1990s which resulted in 188 fatalities and several hundred injured workers, and which can negatively impact a country or region’s reputation as a safe, trustworthy and reliable place to do business.

In summary, in response to the need for solutions to the challenges faced by both business and those in the regulatory environment, the fire sprinkler industry continues to develop new and innovative products and standards which provide far more flexible and cheaper solutions. Solutions which make protecting a facility and the value it creates against the hazard of fire, an ever more attractive, viable and logical proposition.

APF

FM Global is a leading commercial and industrial property insurance company and risk management specialist. If you have comments or questions on this article, please contact the author, Brendan MacGrath, Manager, International Standards Group at email: brendan.macgrath@fmglobal.com or Tel: +33.1.46.93.97.00

Distributor and Representative Offices

BRISTOL UNIFORMS

AUSTRALIA

PACIFIC HELMETS AUSTRALIA PTY LTD

Abn 60 088 233 783, Unit 1/28 Burnside Road
Hallmarc Business Park, Yatala Qld 4207
Contact: Keith Ward
Tel: 1300 73 1800
Fax: 07 3441 7177
Email: keith@pacifichelmetsaust.com
Website: www.pacifichelmetsaust.com
Dealer/Distributor

BANGLADESH

MANIK BROTHERS

Hai Mansion (3rd Floor)
9/3 Motijheel Circular Road
Dhaka – 1000, Bangladesh
Contact: Mr A K Bhowmick
Tel: +880 2 7100 589
Fax: +880 2 7100 386
Email: manikbrs@1postbox.com
Dealer/Distributor

BRUNEI

DASAPREM (M) SDN BHD

10 & 12 Jalan Muara 8/9
40000 Shah Alam
Selangor, Darul Ehsan, Malaysia
Contact: Mr Prem R Murthy
Tel: +603 550 9060
Fax: +603 550 4486
Email: dasaprem@yahoo.com
Website: www.dasaprem.com
Dealer/Distributor

CHINA

SHENZHEN RUFN INDUSTRIAL CO LTD

RM-701, 7/F Leaser Tower
1st Fuhua Rd
Shenzhen, China
Contact: Amy Jin
Tel: +86 755 8399 9581
Fax: +86 755 8399 9548
Email: wj@rufn88.com
Dealer/Distributor

FIJI

PHILLIPS & SMITH LIMITED

10 Akatea Road
Glendene
Auckland
New Zealand
Contact: Mr S Hampton
Tel: +649 818 8048
Fax: +649 818 4484
Email: stuart@firemaster.co.nz
Website: www.firemaster.co.nz
Dealer/Distributor

HONG KONG

CHUBB HONG KONG LIMITED

3 Hok Yuen Street East
Hung Hom
Kowloon
Hong Kong
Contact: Mr Simon Tsang
Tel: +852 2746 9628
Fax: +852 2785 0849
Email: simonsft.chubb.com.hk
Website: www.chubb.com.hk
Dealer/Distributor

INDIA

FOREMOST MARKETING PVT LTD

M-1 Green Park Extn, New Delhi 110016, India
Contact: Mr Vinay Khanna
Tel: +91 11 261 969 82
Fax: +91 11 261 669 61
Email: foremost@vsnl.net
Website: www.foremostsafety.com
Dealer/Distributor

JAPAN

ABLE-YAMAUCHI CO LTD

Yokohama Nishiguchi, SIA Building, 10-36
Kitasaiwai, 2-Chome Nishi-Ku
Yokohama 220-0004, Japan
Contact: S. Yamauchi
Tel: +81 45 312 1130
Fax: +81 45 312 1350
Email: emiko@able-yamauchi.co.jp
Website: www.able.yamauchi.co.jp
Dealer/Distributor

MALAYSIA

DASAPREM (M) SDN BHD

10 & 12 Jalan Muara 8/9, 40000 Shah Alam
Selangor Darul Ehsan, Malaysia
Contact: Mr Prem R Murthy
Tel: +603 550 9060
Fax: +603 550 4486
Email: dasaprem@yahoo.com
Website: www.dasaprem.com
Dealer/Distributor

NEW ZEALAND

PHILLIPS & SMITH LIMITED

10 Akatea Road, Glendene
Auckland, New Zealand
Contact: Mr S Hampton
Tel: +649 818 8048
Fax: +649 818 4484
Email: stuart@firemaster.co.nz
Website: www.firemaster.co.nz
Dealer/Distributor

SINGAPORE

YEN LEE FIREWELD PTE LIMITED

18 Penhas Road, 208182, Singapore
Tel: + 65 62909890
Fax: + 65 62961444
Email: jeffrey@fireweld.com.sg
Website: www.fireweld.com.sg
Dealer/Distributor

SRI LANKA

FIRETECH (PRIVATE) LIMITED

34 Walter Gunsekara Mawatha
Nawala, Sri Lanka
Contact: Leon Daniels
Tel: +94 11 4410588
Fax: +94 11 2806666
Email: firetech@pan.lk
Dealer/Distributor

TAIWAN

SHENG-TAI FIRE PROTECTION INDUSTRIAL CO LTD

No 222-2 Sec2, Cheng Tai Rd
Wu-Ku Shiang, Taipei, Hsien, Taiwan
Contact: Liu Yuan Hung
Tel: +886 22292 1751
Fax: +886 22291 1984
Email: sato@mail.mold.net.tw
Website: www.shengtai.com.tw
Dealer/Distributor

VIETNAM

TRAN VU TRADING CO LTD

61 Ban Co Street, District 3
Hochiminh City, Viet Nam
Contact: Tran Vu Hong
Tel: +84 88325101
Fax: +84 88309586
Email: sales@tranvufire.com
Website: www.tranvufire.com
Dealer/Distributor

DRAEGER SAFETY

AUSTRALIA

DRAEGER SAFETY PACIFIC

Axxess Corporate Park
Unit 99, 45 Gilby Road
Mount Waverley, Victoria 3149
Contact: Klaus Schroeter
Tel: +61 3 9265 5000
Fax: +61 3 9265 5097
Email: klaus.schroeter@draeger.com
Representative Office

CHINA

BEIJING FORTUNE DRAEGER SAFETY EQUIPMENT CO LTD

Yu An Lu 22, B Area
Beijing Tianzhu Airport Industrial Zone
Shunyi District, Beijing, 101300
Tel: +86 10 8049 8000
Fax: +86 10 8049 8005
Email: Peter.wang@draeger.com
Representative Office

INDIA

JOSEPH LESLIE DRAEGER MFG PVT LTD

Leslico House, Dadar (W)
Mumbai – 400 028, India
Contact: Prof. V.S Agashe Marg
Tel: +91 22 2422 7587/1880
Fax: +91 22 2430 3705
Email: clint.pereira@lesliedraeger.com
Representative Office

INDONESIA

PT DRAEGERINDO JAYA

Jl. Pangeran Antasari No. 67
Cilandak Barat Unit L, Jakarta, Selatan 12430
Tel: +6221 751 3289
Fax: +6221 751 2052
Email: product_support@draeger.co.id
Representative Office

JAPAN

DRAEGER SAFETY JAPAN LTD

3-8-1 Tokyo, Koto-ku, Tokyo 135 0016
Tel: +81 3 44 615111
Fax: +81 3 44 615100
Email: jutta.rieger@draeger.com
Representative Office

KOREA

DRAEGER SAFETY ASIA

Daejong Bld. #1106
Bang-l-dong, Songpa gu, Seoul, Korea
Tel: +82 2 6415 8222
Fax: +82 2 6415 8223
Email: sdseo3@magincn.com
Representative Office

MALAYSIA**DRAEGER SAFETY ASIA PTE LTD**

14 Jalan PJS 11/18
Sunway Technology Park
46150 Petaling, Jaya
Selangor
Tel: +60 3 5635 6460
Fax: +60 3 5635 4171
Email: dsa.malaysia@draeger.com
Representative Office

NEW ZEALAND**DRAEGER SAFETY PACIFIC PTE LTD**

Unit O, No. 150
Harris Road, East Tamaki
Auckland
Tel: +649 273 3160
Fax: +649 273 3159
Email: geert.herder@draeger.com
Representative Office

SINGAPORE**DRAEGER SAFETY ASIA PTE LTD**

67 Ayer Rajah Crescent #06-03
Singapore 139950
Tel: +65 6872 9281
Fax: +65 6773 2033
Email: justin.kung@draeger.com
Website: www.draeger.com.sg
Regional Head Office

TAIWAN**DRAEGER SAFETY TAIWAN CO LTD**

12/F, Kuohwa Building
868-5 Chungcheng Rd
Chungho City
Taipei county 235
Tel: +886 (02) 2223-6388
Fax: +886 (02) 2223-2258
Email: sales.taiwan@draeger.com
Representative Office

THAILAND**DRAEGER SAFETY (THAILAND) LTD**

123/20, Nonsi Road
Kwaeng Chongnonsi
Khet Yannawa
Bangkok 10120
Tel: +662 6811 781 (4 lines)
Fax: +662 6811 780
Email: sales.thailand@draeger.com
Representative Office

VIETNAM**DRAEGER SAFETY ASIA PTE LTD**

No.5
A2 Nguyen Khanh Toan Str.
Cau Giay District
Hanoi, Vietnam
Tel: +84 4 281 3463
Fax: +84 4 281 3461
Email: thu.huong@draeger.com
Representative Office

E2V TECHNOLOGIES**HONG KONG****ARGUS E2V**

11/F Onfem Tower
29 Wyndham Street
Central Hong Kong
Tel: +852 3679 364 8/9
Fax: +852 3583 1084
Email: argus.enquiries-ap@e2v.com
Representative Office

INDIA**FOREMOST MARKETING PVT LTD**

M-1, Green Park Extn
New Delhi 1100016, India
Tel: 00 91-11-261-96982
Fax: 00 91-11-261-66961
Email: foremost@vsnl.net
Website: www.foremostsafety.com
Dealer/Distributor

JAPAN**CORNES DODWELL LTD (OSAKA)**

13-40 Nishihonmachi, 1-chome, Nishi-ku
Osaka 550-0005, Japan
Tel: +81-6-6532-1012
Fax: +81-6-6532-7749
Email: e-device@cornes-dodwell.co.jp
Website: www.cornes-dodwell.co.jp
Dealer/Distributor

KOREA (SOUTH)**GODO ENGINEERING CO LTD**

1FL. 142-5, Yeonhee-2
Dong Soedaemun-Gu, Seoul
Korea, 120-112
Tel: 822-3141-1236
Fax: 822-3141-1270
Email: info@godoeng.com
Website: www.godoeng.com
Dealer/Distributor

FIKE**AUSTRALIA****FIRE PROTECTION TECHNOLOGIES PTY LTD**

Unit 14
42-44 Garden Blvd, Dingley
Victoria 3712, Australia
Tel: +61 3 9558 0715
Fax: +61 3 9558 0725
Email: Enquiries@fire-protection.com.au
Website: www.fire-protection.com.au
Dealer/Distributor

BANGLADESH**NAVANA INTERLINKS LTD**

205-207 Tejgaon I/A
Dhaka-1208, Bangladesh
Tel: +88 02 -9892911
Fax: +88 02 -9895252
Email: info@navana-iv.com
Dealer/Distributor

HONG KONG**THE JARDINE ENGINEERING CORPORATION LTD**

13/F Somerset House
Taikoo Place, 979 King's Road
Hong Kong
Tel: +852 2807 4562
Fax: +852 2503 4210
Email: Keith.lam@jec.com
Website: www.jec.com
Dealer/Distributor

INDIA**NEWAGE INDUSTRIES**

Champaklal Ugyog Bhavan
Unit No. 7, Sion (East)
Mumbai 100 022, India
Tel: +91 22 2407 7421
Fax: +91 22 2407 4229
Email: info@newage-india.com
Website: www.newage-india.com
Dealer/Distributor

INDONESIA**KARYA LESTARI MAKMUR PT**

Jl. Pangeran Jayakarta
85AK, Jakarta 10730, Indonesia
Tel: +62 21 628 1933
Fax: +62 21 628 1976
Email: johnklima@cbn.net.id
Dealer/Distributor

KOREA**PARADISE INDUSTRY CO LTD**

#683-116 Hannam-Dong
Yongsan-Ku
Seoul
South Korea
Tel: +82 2 3780 8770
Fax: +82 2 3780 8772
Email: shlee@paradise-ind.co.kr
Website: www.paradise-ind.co.kr
Dealer/Distributor

MALAYSIA**FIKE ASIA PACIFIC SDN BHD**

18B Jalan Astaka L U8/L
Bukit Jelutong
40150 Shah Alam
Selangor, Malaysia
Tel: +60 3 7859 1462
Fax: +60 3 7859 1461
Email: Chun-wah.leong@fike.com
Website: www.fike.com
Representative Office

SUKIADA ENGINEERING SDN BHD

No. 20 Jalan Astaka L U8/L
Bukit Jelutong
40150 Shah Alam
Selangor
Malaysia
Tel: +60 3 7845 2008
Fax: +60 3 7845 6008
Email: sukiada@sukiada.com.my
Website: www.sukiada.com.my
Dealer/Distributor

PAKISTAN**MGH ENGINEERING AND CONTROL PVT LTD**

H. # 20 St.
#5/A Kot Shahabdin
Shahdrah
Lahore 54950, Pakistan
Tel: +92 - 42 - 7913064
Fax: +92 - 42 - 7913064
Email: mansoorshaker@yahoo.com
Website: www.mgheng.com
Dealer/Distributor

PHILIPPINES**FIRE SOLUTIONS INC**

Room 401
CBT Condominium
60 West Avenue
Quezon City 1104, Philippines
Tel: +63 2 371 9774
Fax: +63 2 374 3041
Email: firesolutions@skyinet.net
Dealer/Distributor

SINGAPORE**FICON PTE LTD**

11, Toh Guan Road East
05-01, Singapore 608603
Tel: +65 6895 8820
Fax: +65 6425 5972
Email: Janelow@ficon.com.sg
Dealer/Distributor

SRI LANKA**BUILDING SERVICES (M&E)
ENGINEER INTERNATIONAL
PVT LTD**

122 Dawson Street
Colombo-02, Sri Lanka
Tel: +94 11 471 7500
Fax: +94 11 245 4653
Email: bldserv@sltnet.lk
Dealer/Distributor

TAIWAN**SUNMORN INC**

7F.-2, 76
Nan Jing W. Road
Taipei 103, Taiwan
Tel: +886 2 2550 3500
Fax: +886 2 2550 5350
Email: services@sunmoreinc.com
Website: www.sunmoreinc.com
Dealer/Distributor

THAILAND**ANTI-FIRE CO LTD**

316-316/1
Sukhumvit 22 Road, Klongtoey
Bangkok 10110
Thailand
Tel: +66 2 260 4565 9
Fax: +66 2 258 2422
Email: sithichai@antifire.com
Website: www.antifire.com
Dealer/Distributor

**FIRE FIGHTING
ENTERPRISES****AUSTRALIA****AMPAC INDUSTRIES PTY LTD**

97 Walters Drive
Osbourne Park
Western Australia 6017
Tel: +61 892 423 333
Fax: +61 892 423 334
Website: www.ampac.com.au
Dealer/Distributor

BAHRAIN**KHAYBER TRADING COMPANY**

W.L.L
P.O. Box No. 1976
Cr.No. 40189-01
Manama, Bahrain
Email: FX ABB 50
Dealer/Distributor

CYPRUS**M.T. PIPERARIS TRADING LTD**

Nafpactou 19a
Lemesos 3051
Cyprus
Tel: +357 5 737311
Fax: +357 5 737310
Dealer/Distributor

HONG KONG**HLK SERVICES LTD**

Room 1111, Tower B
Hung Hom Commmerc'l Centre
39 Ma Tau Wai Road
Hung Hom, Kowloon
Hong Kong
Tel: +852 23303083
Fax: +852 23656128
Dealer/Distributor

INDIA**NITIN FIRE PROTECTION**

Industries Ltd
501, Delta Technology St.
Hiranandani Gardens
Powai, Mumbai -400 076, India
Tel: +91 22 25700392
Fax: +91 22 25701110
Dealer/Distributor

ISRAEL**AAP TECHNOLOGY LTD**

84, Ben-Tzvi Road
Panarama House
61364 Tel-Aviv, Israel
Tel: +972 3518 1444
Fax: +972 3518 1445
Dealer/Distributor

TELEFIRE FIRE & GAS

Detectors Ltd
P.O.B 7036
Petach-Tikva 49250, Israel
Tel: +972 3 9211955
Fax: +972 3 9211816
Dealer/Distributor

IRAN**NAR KOOB IRAN**

Apt 7, 3rd Floor
No 32, Varavini St. Amir Atabak
St. Ostad Motahari Ave.
Tehran – Iran
Tel: +98 21 88842649
Fax: +98 21 88307405
Dealer/Distributor

KOREA**HI MAX CO LTD**

Sicox Tower
115-Ho 513-14
Sangdaewon-Dong
Jungwon-Gu
Sungnam-City, Kyungki Do
Korea
Tel: +82 31 769 7698
Email: khkim@himax119.co.kr
Dealer/Distributor

MALAYSIA**FITTERS ENG SERVS SDN BHD**

No.1 Block C
Jalan Dataran, Sd1 Pju 9
52200 Bandar Sri
Damansara
Kuala Lumpur, Malaysia
Tel: +60 3 62767155
Fax: +60 3 62758712
Dealer/Distributor

NEW ZEALAND**AMPAC INDUSTRIES LIMITED**

P.O. Box 100-149
North Shore Mail Centre
Glenfield
Auckland
Tel: +64 94438072
Fax: +64 94438073
Dealer/Distributor

QATAR**AL SHAIBEH ESTABLISHMENT**

P.O. Box 3975
Doha, Qatar
Tel: +974 4322140
Fax: +974 4416650
Dealer/Distributor

SINGAPORE**ACCLAIM SYSTEMS PTE LTD**

Blk 104, Boon Keng Road
05-01 Singapore 339775
Tel: +656 2990 798
Fax: +656 299 3735
Dealer/Distributor

ALARM SUPPLY PTE LTD

63 Jalan Pemimpin
03-07, Pemimpin Industrial Bldg
Singapore 577219
Tel: 00 656 258 3445
Fax: 00 656 258 6428
Dealer/Distributor

SRI LANKA**FIRETECH (PVT) LTD**

34, Walter Gunasekara
Mawatha, Nawala
Sri Lanka
Tel: +94 1 806613
Fax: +94 1 806666
Dealer/Distributor

SYRIA**ESS COMPANY**

P.O. Box 35478
Damascus
Syria
Dealer/Distributor

TAIWAN**HORING LIH IND CO LTD**

4f No 18 Lane 327
Chung Shan Road
Sec 2 Chung-Ho-City
Taipei Hsien, Taiwan
Tel: +886 2224 87599
Fax: +886 2224 07752
Dealer/Distributor

THAILAND**F.B. (THAILAND) LTD**

75 Soi Rubia
Sukhumvit 42 Road
Bangkok 10110
Thailand
Tel: +66 2 3902445
Fax: +66 2 3811197
Dealer/Distributor

TEEYA MASTER SYSTS CO LTD

100/101-102 Vongvanji
Building B
30th Flr, Rama 9 Road
Huaykhwang
Bangkok 10320
Thailand
Tel: +662 2 6451130
Fax: +662 2 2488540
Dealer/Distributor

UNITED ARAB EMIRATES**BAHRI & MAZROEI TRADING CO**

P.O. Box 1247
Deira – Dubai, U.A.E
Tel: +971 42691610
Fax: +971 42664627
Dealer/Distributor

NAFFCO

P.O. Box 17014
Jebel Ali Free Zone Area
Dubai, U.A.E
Tel: +971 4 881 5653
Fax: +971 4 881 6229
Email: girish@naffco.ae
Dealer/Distributor

TELECTRON

P.O. Box 2946, Al Salam Street
Bldg. No.5, Abu Dhabi, U.A.E
Tel: +971 26795333
Fax: +971 26794609

Dealer/Distributor

HOLMATRO RESCUE EQUIPMENT

AUSTRALIA**CHUBB FIRE SAFETY LTD**

120, Silverwater Road, Silverwater, NSW 2128
Locked Bag 102, Silverwater 1811

Contact: Andrew Loftus

Tel: 1300 369 309

Fax: 02 8748 7450

Email: firesafety@chubb.com.au

Website: www.chubb.com.au

Dealer/Distributor

CHINA**HOLMATRO CHINA****UNIT 14/D – 9 JOY TOWER**

9 Zhen Ning Road
Shanghai 200050, P. R. China

Contact: Floris Evers

Tel: +86 21 5238 7330

Fax: +86 21 5238 7320

Email: china@holmatro.com

Website: www.holmatro-china.com

Representative Office

HONG KONG**ABLESLINK CO LTD**

Unit B4, 2/F., Block B
Sheung Shui Plaza, 3 Ka Fu Close

Sheung Shui, N.T., Hong Kong

Contact: Mr. Randy Hau

Tel: +852-2466 4568

Fax: +852-2466 4569

Email: ableslink@yahoo.com

Dealer/Distributor

INDONESIA**PT ESA KARYA MANDIRI****JL.SUNTER PARADISE**

Timur Raya, F21 No.C42, Jakarta 14350

Contact: Ir.Benny N Liem

Tel: 062-21-6412936/65303502

Fax: 062-21-6412937

Email: esakarya@cbn.net.id

Dealer/Distributor

JAPAN**AKAO & CO LTD**

4-13-1 Shinmachi Nishi-ku

Osaka, Japan 550-0013

Contact: Masaya Saga

Tel: +81-6-6532-6256

Fax: +81-6-6532-3095

Email: info@akao-co.co.jp

Website: www.akao-co.co.jp

Dealer/Distributor

KOREA (SOUTH)**KEO WHA HITEC CO LTD**

Rm-1Fl, Jiwoo Bldg

376-12, Seogyo-dong

Mapo-gu, Seoul, Korea

Contact: Mr. Kenneth Zyung

Tel: 82-(02)-336-0145-7

Fax: 82-(02)-336-0180

Email: jfckenneth@yahoo.co.kr

Website: www.kh-hitec.com

Dealer/Distributor

MALAYSIA**PANDAN NIAGA SDN BHD**

No. 81A, Jalan Tabla 33/21

Shah Alam Technology Park

Section 33, 40400 Shah Alam

Selangor Darul Ehsan, Malaysia

Contact: Mohd Rashdi Abd Rahman

Tel: +603 5122 1310

Fax: +603 5122 1279

Email: pnsb@pn.com.my

Dealer/Distributor

NEW ZEALAND**CHUBB FIRE & SAFETY**

3 Fisher Crescent, Mt Wellington, Auckland

Contact: Steve Kirk

Tel: +64 9 270 7441

Fax: +64 9 270 7235

Email: fireandsafety@chubb.co.nz

Website: www.chubb.co.nz

Dealer/Distributor

PHILIPPINES**WALLGREEN INDUSTRIAL VENTURES CORP**

62 West Avenue, Quezon City

Philippines 1104

Contact: Francisco C. Dizon

Tel: +6 32 411 0818

Mobile: +6 32 0917 820 1947

Fax: +6 32 411 0818

Email: wivcor@yahoo.com

Dealer/Distributor

TAIWAN**PARKSON TRADING CO LTD**

10F, No. 32, Wen-Jung Road

Guo-Shan Dist., Kaohsiung City

80464 Taiwan, R.O.C.

Contact: Mr. Johnson Peng

Tel: +886-7-552-1650

Fax: +886-7-552-7999

Email: ptckpeng@parkson.com.tw

Dealer/Distributor

PBI PERFORMANCE PRODUCTS

AUSTRALIA**ELLIOTT AUSTRALIA PTY LTD**

PO Box 509, 23 Vauxhall Street

Virginia, QLD 4014

Tel: (617) 3265 2944

Fax: (617) 3265 2903

Website: www.elliottastralia.com

Dealer/Distributor

LION APPAREL ASIA PACIFIC

Unit 13, 15 Dunstan Road

Wingfield, South Australia 5013, Australia

Tel: +61 8 8139 7777

Fax: +61 3 8139 7788

Email: LionAsia@lionapparel.com

Website: www.lionapparel.com

Representative Office

MELBA INDUSTRIES

PO Box 466

Thomastown, VIC 3074, Australia

Tel: +61 3 9474 3072

Fax: +61 3 9464 4114

Email: robert.walsh@melbaind.com.au

Website: www.melbaind.com.au

Dealer/Distributor

PACIFIC HELMETS (AUSTRALIA) – BRISTOL

Unit 1

28 Burnside Road

Hallmarc Business Park, Yatala

QLD 4207

(PO Box 356 Ormeau, QLD 4208)

Contact: Keith Ward

Tel: 1300 73 1800 (in Australia)

Tel: (61) 7 3441 7100

Email: keithward@pacifichelmetsaust.com

Dealer/Distributor

STEWART & HEATON CLOTHING CO PTY LTD

150 Francisco Street

Belmont, WA 6104

Australia

Tel: +61 8 9277 5555

Fax: +61 8 9277 5455

Email: admin@shcc.com.au

Website: www.shcc.com.au

Dealer/Distributor

CHINA**WAH TAI ENTERPRISES LTD**

PO Box No. 10303

General Post Office

Hong Kong, China

Contact: Johnny Ho

Tel: (852) 2771 6360 Work

02808-1172 Home

Fax: 852-2782-0718

Email: jho@wah-tai.com

Website: www.wtyf.com

Dealer/Distributor

MALAYSIA**INVERSYS CORPORATION SDN BHD**

COSALT Fire apparel

No. 2-3-1, Jalain 5/101C

Cheras Business Center

Taman Cheras

56100 Kuala Lumpur

Malaysia

Zaini Bin Zainal

Tel: 603-91329227/603-91318761

Fax: 603-91327685

Email: zaini@inversys.com

RUSSWURM VENTILATOREN GMBH

CHINA**GDW-BROCOO**

Pneumatic Technique Co. Ltd.

No B-705 of Triumphal Arch Plaz

Plaza Xudong Road

CN-430066 Wuhan

P.R. China

Tel: +0086 27 86828060

Fax: +0086 27 86728946

Email: info@gdw-brocoo.com

Dealer/Distributor

INDIA**GAS ENGG. P LTD**

C408, Shiv Sagar

Plot No 79, Gorai II, Borivali West

IND-400 091 Mumbai

India

Tel: 0091 9820035452

Email: gec@vsnl.net

Dealer/Distributor

INDONESIA**NARAYANI AGENCIES**

J. B. Business Centre, Room No. 18,
Fifth Floor 506
116 Park Lane S.D. Road
IN-500003 SECUNDERABAD
Indonesia
Email: sunita_na2001@yahoo.com
Dealer/Distributor

SECURITON AG**ASIA PACIFIC****SECURITON (M) SDN BHD**

No. 19A, Lorong Rahim Kajai 13
Taman Tun Dr. Ismail
MY-60000 Kuala Lumpur
Malaysia
Contact: Mr Lewis Chong
Tel: +60 3 7725 1699
Fax: +60 3 7725 1677
Email: asia@securiton.com.my
Website: www.securiton.eu
Representative Office

AUSTRALIA**AUSTRALIAN FIRE ENTERPRISES (AFE)**

P.O. Box 7027, Mannerling Park
NSW 2259, Australia
Contact: Mr Mike Donegan/Mr Brett Gordan
Tel: 61 2 43 592 244
Fax: 61 2 43 593 301
Email: sales@austfire.com.au/
afe@ozemail.com.au
Dealer/Distributor

BEIJING, CHINA**BEIJING RUIHENGDA SCIENCE & TECHNOLOGY DEVELOPMENT LTD**

B106, Hua Zhan International Apartment
No. 12 Yumin Road
Chao Yang District
Beijing 100029
Contact: Mr Sun Wei
Tel: 86 10 8225 3488
Fax: 86 10 8225 3237
Email: sunwei@fireprotec.net
Website: www.fireprotec.net
Dealer/Distributor

BEIJING Z-N MECHANICAL & ELECTRICAL EQUIPMENT CO LTD

1# B910, Lingdi Office
No.13 Beiyuan Lu
Chaoyang District Beijing
China 100012
Contact: Ms Sarah Zhang
Tel: 86 10 5207 3836
Fax: 86 10 5207 3839
Email: sarahzh@vip.sina.com/
bjzhongna@yahoo.com.cn
Dealer/Distributor

SHANGHAI, CHINA**SHANGHAI ZHENYE INDUSTRY CO LTD**

No. 3 221, Cao Bao L
Shanghai, 200233
Contact: Mr Jack Shen
Tel: 86 21 6451 2922/2933
Fax: 86 21 6451 9955
Email: sy1199@163.com
Website: www.shzhenye.com
Dealer/Distributor

SHENZHEN, CHINA**SHENZHEN YAOHUAJI CHINA CO LTD**

RM.F, 20th Floor Yong – Hui Building
Guo-Qi Building, Shenzhen
Contact: Mr Raymond Ng/Ms Shi
Tel: +86 755 8212 9831
Fax: +86 755 8212 9909
Email: rng@ywk.com.hk
Website: www.ywk.com.hk
Dealer/Distributor

HONG KONG**YIU WAH (KOGARAH) CO LTD**

Room 901, 9th Floor
No 113 Argyle Street, Mongkok
Kowloon, Hong Kong
Contact: Mr Raymond Ng
Tel: +852 2781 1384
Fax: +852 2782 6652
Email: ywk@ywk.com.hk
Website: www.ywk.com.hk
Dealer/Distributor

MUMBAI, INDIA**HSE ENGINEERS PVT LTD**

2, Durgas Niwas
1st Floor, Bhawani Tower Compound
Behind Bhawani Petrol Pump
IIT Powai
Mumbai 400076, India
Contact: Mrs Sapna Prajapati
Tel: +91 22 2578 7014 / 7015
Fax: +91 22 2578 7016
Email: hsemumbai@hseengineers.com
Website: www.hseengineers.com
Dealer/Distributor

VIMAL FIRE CONTROLS PVT LTD

19/20 Vardhaman Service
Industrial Estate, L.B.S. Marg.
IN-400083 Vikhroli (West) Mumbai
India
Contact: Mr Vijay Doshi/Mr Nalin Doshi
Tel: +91 22 2578 3335
Fax: +91 22 2578 3338
Email: nalin@vimalfire.com/
falgun@vimalfire.com
Website: www.vimalfire.com
Dealer/Distributor

KOREA (SOUTH)**ROYAL INDUSTRIAL TECHNOLOGY CORPORATION**

Royal Building, 3rd Floor
840-5 Yeoksam-Dong, Kangnam-Ku
Seoul 135080, Korea
Contact: Mr E.S. Kim/
Mr J.K.Chung
Tel: +82 22 009 1800
Fax: +82 2 567 8831
Email: kes@ritco.co.kr/
jkchung@ritco.co.kr
Website: www.ritco.co.kr
Dealer/Distributor

MALAYSIA**FITTERS SDN BHD**

No. 1, Jalan Tembaga
SD5/2, Sri Damansara
52200 Kuala Lumpur
Contact: Dato' Richard Wong
Tel: +60 3 6276 7155
Fax: +60 3 6175 2780
Email: chankokhoe@fittersgroup.com/
eugene@fittersgroup.com
Website: www.fittersgroup.com
Dealer/Distributor

SYARIKAT LETRIK CHEN GUAN SDN BHD

Lot 1178, Jalan Subang 3
Taman Industri, Sg. Penaga
47610 Subang Jaya, Selangor, Malaysia
Contact: Mr Choong Yew Lim
Tel: +603 5634 1436
Fax: +603 5634 2349
Email: chenguan@streamyx.com
Dealer/Distributor

PAKISTAN**EVERGREEN DEVELOPMENT CORPORATION**

Suite # 514, 5th Floor
Clifton Centre, Block 5 Kehkashan
Clifton, Karachi 75600, Pakistan
Contact: Mr Munawar Afridi
Tel: 92 21 5873 448
Fax: 92 21 5870 080
Email: genco@cyber.net.pk
Website: www.edcpl.com
Dealer/Distributor

TAIWAN**ATLAS TECHNOLOGY CORPORATION**

22F, No 1 Bausheng Road
Yunghe City, Taipei, Taiwan 234, R.O.C.
Contact: Mr David Liu
Tel: +886 2 223 20 556
Fax: +886 2 223 16 657
Email: david@atlasgroup.com.tw/
hunter@atlasgroup.com.tw
Website: www.atlasgroup.com.tw
Dealer/Distributor

KGIC TECHNOLOGY CO LTD

No. 49 Goang Shi Road
Kaohsiung 806, Taiwan R.O.C.
Contact: Mr Franco Lee
Tel: +886 7 715 4285
Fax: +886 7 715 4401
Email: lic@ms9.hinet.net
Website: www.gictec.com.tw
Dealer/Distributor

UNIVERSAL PATHS DEVELOPMENT CORPORATION (UPDC)

Mr Terry Chung/Ms Ellie Chou
9F-1, 306, Sec. 1, NeiHu Road
Taipei 114, Taiwan R.O.C.
Tel: +886 2 8751 6055
Fax: +886 2 8751 6053
Email: ellie@updc.com.tw
Website: www.updc.com.tw
Dealer/Distributor

SINGAPORE**SWISS SECURITAS ASIA PTE LTD**

20, Jalan Lekar, Singapore 698931
Contact: Mr Michael Boon
Tel: 65 6767 1455
Fax: 65 6767 0560
Email: mike.boon@securitas.sg
Website: www.securitas.sg
Dealer/Distributor

SCOTT HEALTH & SAFETY**AUSTRALIA/NEW ZEALAND****SCOTT HEALTH & SAFETY – AUSTRALIA/NEW ZEALAND**

137 McCredie Road
Guildford, NSW 2161, Australia
Email: shscs@tycoint.com
Representative Office

**SCOTT HEALTH & SAFETY –
AUSTRALIA/NEW ZEALAND**

Unit 4, Deakin Street
Brendale, QLD 4500, Australia
Tel: +61 7 3804 6814
Fax: +61 7 3204 3807
Email: Scottmarketing.anz@tycoint.com
Website: www.scottthehealthsafety.com
Representative Office

CHINA**SHANGHAI EAGLE SAFETY
EQUIPMENT LTD**

No. 1, Lane 955, Jinhai Rd
Pudong
Shanghai
Tel: +86 (0) 21 6163 3376
Fax: +86 (0) 21 6163 3372
Website: www.eagle-sh.com
Dealer/Distributor

SINGAPORE**SCOTT HEALTH & SAFETY**

No. 2 Serangoon North Avenue 5
#07-01
Singapore 554911
Contact: Tom Barrett
Tel: +(65) 9823-5700
Fax: +(65) 6245-6718
Email: tbarrett@tycoint.com
Representative Office

**SOLBERG
SCANDINAVIAN AS****AUSTRALIA****SOLBERG ASIA PACIFIC PTY LTD**

P.O. Box 182
Kingswood NSW 2747
Australia
Contact: Ted Schaefer
Technical Manager
Tel: 61 2 9673 5300
Email: ted@solbergfoams.com
Website: www.solbergfoams.com
Representative Office

MALAYSIA**RHINOSHIELD INDUSTRIES(M) SDN
BHD**

H-0-5 Ground Floor Plaza Damas
No. 60 Jalan Sri Hartamas 1
Sri Hartamas
50480 Kuala Lumpur
Malaysia
Contact: C. K. Lim
General Manager
Tel: +603 62033850
Fax: +603 62032245
Email: rhinoshield@pd.jaring.my
Dealer/Distributor

TASK FORCE TIPS INC**AUSTRALIA****GAAM EMERGENCY PRODUCTS**

29 Temple Dr., P.O. Box 211
Thomastown, Victoria 3074
Australia
Tel: +61 3 9466 1244
Fax: 61 3 9466 4743
Email: iprice@tycoint.com
Website: www.gaam.com.au
Dealer/Distributor

CHINA**SHANGHAI JINDE INDUSTRY
DEVELOPMENT CO LTD**

Room 610, 1 Lane 50
Xin Cun Road, Shanghai, 200065, China
Tel: +86 21-360-50599
Fax: +86 21-360-55599
Email: jmgushon@online.sh.cn
Dealer/Distributor

HONG KONG**ROTTER INTERNATIONAL LIMITED**

Unit A G/F.
Hung To Road, 6-8 Hung To Road
Kowloon, Hong Kong
Tel: 85227517770
Fax: 85227562051
Email: jacky@rotter.com.hk
Dealer/Distributor

INDIA**FOREMOST TECHNICO PVT LIMITED**

M-1, Green Park Extension
New Delhi 110016, India
Tel: +91 (11) 2619 6997
Fax: +91 (11) 2616 6961
Dealer/Distributor

Mumbai Resi./Office:

803, 8th Floor
Bldg. No. 23 C
Opp., Jalvayu Vihar
Hiranandani Gardens, Powai
Mumbai – 400 076
Email: info@tca.co.in
Website: www.tca.co.in

INDONESIA**PT PALMAS ENTRACO**

Jl. Krekot 85, Jakarta-Pusat
Indonesia
Tel: +62 (21) 384 1681
Fax: +62 (21) 380 2660
Email: ptpalmas@attglobal.net
Dealer/Distributor

JAPAN**YONE CORPORATION**

23, Nishinakaai-Cho
Nishinokyo
Nakagyo-Ku, Kyoto 604, Japan
Tel: +81 (7) 582-11185
Fax: +81 (7) 580-12263
Email: t.yone@myad.jp
Website: www.yone-co.co.jp
Dealer/Distributor

KOREA (SOUTH)**SHILLA FIRE CO LTD**

433-11 Non Hon-Dong
Nam Dong-Gu, Incheon City 405-300
South Korea
Tel: +82-02-3665 9011
Fax: +82-02-3663 9113
Email: kofire77@hotmail.com
Website: www.firekorea.com
Dealer/Distributor

MALAYSIA**CME EDARAN SDN BHD**

Lot 19, Jalan Delima 1/1
Subang Hi-Tech industrial Park
Batu Tiga, 4000 Shah Alam
Selangor Darul Ehsan, Malaysia
Tel: +60 (3) 56331188
Fax: +60 (3) 56343838
Email: simon.tan@cme.com.my
Dealer/Distributor

PAKISTAN**FIRESTOP PVT LIMITED**

6/B, 1st Floor, Dinar Chambers
P.O. Box # 5786
West Wharf Road
Karachi-74000
Pakistan
Tel: 9221-2315675, 2313065
Fax: 9221-2310457, 5831015
Email: info@firestopaids.com
Website: www.firestopaids.com
Dealer/Distributor

PHILIPPINES**ALLIANCE INDUSTRIAL SALES**

Unit 4
Finlandia Town Homes
1700 Dian
cor. Finlandia Street
Brgy, San Isidro
1234 Makati City
Philippines
Tel: +63 21 7546 1749
Fax: +63 2 887 7173
Email: alliance8_jcy@pacific.net.ph
Dealer/Distributor

SINGAPORE**S.K. FIRE PTE LTD**

8 Tuas Drive 2
Singapore 638643
Singapore
Tel: +65 6862 3155
Fax: +65 6862 0273
Email: houchin@skfire.com
Website: www.skfire.com
Dealer/Distributor

TAIWAN**YONE CORPORATION**

23, Nishinakaai-Cho
Nishinokyo
Nakagyo-Ku
Kyoto 604
Japan
Tel: +81 (7) 582-11185
Fax: +81 (7) 580-12263
Email: t.yone@myad.jp
Website: www.yone-co.co.jp
Dealer/Distributor

THAILAND**ANTI-FIRE, CO LTD**

316-316/1, Sukhumvit 22 Rd
Klongtoey Klongtoey
Bangkok
10110 Thailand
Tel: 6622596898
Fax: 6622582422
Email: sithichai@antifire.com
Website: www.antifire.com
Dealer/Distributor

THE S.E.A. GROUP**AUSTRALIA****SAFETY EQUIPMENT AUSTRALIA PTY
LTD**

35/1 Jubilee Avenue
Warriewood
NSW 2102 Australia
Tel: +61 2 9910 7500
Fax: +61 2 9979 5364
Email: sea.australia@theseagroup.com
Website: www.sea.com.au
Representative Office

SUBSCRIPTIONS

ASIA PACIFIC FIRE MAGAZINE

GET YOUR SUBSCRIPTION NOW!!!



**APF IS PUBLISHED 4 TIMES A YEAR
– MARCH, JUNE, SEPTEMBER
AND DECEMBER**

Name: _____

Company/Organisation: _____

Address: _____

Telephone: _____

Fax: _____

E-mail: _____

Start Subscription from Issue: _____

Subscription Rates: Sterling £50.00 AUS Dollars – \$100.00

US Dollars – \$70.00

Back Issues: US \$8.00 or £5.00 each inclusive of P&P
(subject to availability)

METHODS OF PAYMENT:

Website Subscription: www.mdmpublishing.com

Cheque: _____ MDM Publishing Ltd.

Visa/Mastercard No: _____

Expiry Date: _____ Security Code: _____
(last three digits on reverse of card)

If paying by credit card please fax details. DO NOT post/mail.
Fax: +44 (0) 1935 426926

MDM Publishing Ltd.

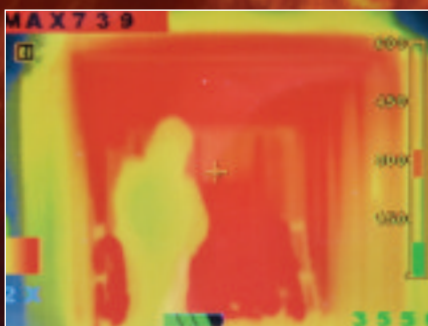
The Abbey Manor Business Centre, The Abbey, Preston Road,
Yeovil, Somerset BA20 2EN, United Kingdom

ADVERTISERS' INDEX

Albany Engineering	19
Albert Ziegler GmbH & Co. KG	43
Bio-Ex	19
Bristol Uniforms Ltd.	51
Control Logic s.r.l.	58
Dafo Fomtec	14
Draeger Safety Asia Pte Ltd.	30
Dr. Sthamer Hamburg	17
e2v Technologies	34
Fike Corporation	24
Fire Fighting Enterprises	47
Firetrace International	06
Holmatro Rescue Equipment	44
Interfron S.p.A.	44
International Firex	62
Iveco Magirus Fire Fighting GmbH	38
Janus Fire Systems	26
Lancier Hydraulik Co. KG	47
Minimax Mobile Services GmbH & Co. KG	29
NFPA	04
PBI Performance Products	OBC
Plastika Akrapovic	53
Russwurm Ventilatoren GmbH	19
Scott Health & Safety	IBC
Securiton AG	29
Sicor Spa	48
Solberg Asia Pacific Pty. Ltd.	27
Super Vacuum Manufacturing Co., Inc.	23
Task Force Tips, Inc.	IFC
Texas A & M Emergency Services Training Institute	16
The S.E.A. Group	54
Unifire Power Blowers	20

Don't get left in the dark

See the light



The new Eagle 320 Thermal Imaging Camera features a large 10 cm screen with up to 4 x zoom and a variety of temperature indicators to ensure you have the information you need

- Maximum Temperature Indicator
- Large LCD Display with 4x Zoom
- Over 4.5 hour Battery Life
- Ergonomic Multi Positioned Handle

EAGLE™ 320

For further information call Customer Services on: +44 (0) 1695 711711
quoting reference FT0309 or email scott.sales.uk@tycoint.com



SCOTT®
HEALTH & SAFETY

www.scotthealthsafety.com

Every Picture Tells A Story.



PBI Fabrics Engineered For The Work You Do.

When it comes to firefighting, reliable protection that stands tough against heat and flame, and remains service worthy, is what you picture. And, for more than 25 years, in more cities, and in more departments, PBI Gold®, PBI Matrix® and PBI TriGuard® fabrics have been doing just that...providing unmatched protection and performance to more firefighters than any other high performance fabric. From turnout gear and hoods to inventive USAR gear, these exclusive fabrics take personal protection to the highest level, combining unmatched flame and thermal protection with unsurpassed strength and durability. PBI fabrics...picture perfect performance.



9800 Southern Pine Blvd Suite D // Charlotte, NC 28273 USA // T 704-554-3378 // F 704-554-3101
www.pbipproducts.com // E-mail: walt.lehmann@pbipproducts.com
Galgenbergstrasse 2b // Im Posthof // D -93053 Regensburg, Germany
T +49 (0) 941 70 54 370 // F +49 (0) 941 70 54 110 // E-mail: Helmut.Zepf@pbipproducts.com

APF

An MDM PUBLICATION
Issue 30 – June 2009

www.mdmpublishing.com

ASIA PACIFIC FIRE MAGAZINE



REPORTING TO THE ASIA PACIFIC FIRE PROTECTION AND FIRE SERVICE INDUSTRY

TASK FORCE TIPS, INC.



2351 Industrial Drive, Valparaiso, IN 46383-9511 USA
International +1.219.548.4000 • www.tft.com • intsales@tft.com



ATEX Version Available

4500 l/min

Hurricane Remote Controlled
and Manual Monitor

- Maximum Operating Pressure 14 bar
- Only 1.9 bar friction loss at 4500 l/min
- Field Changeable Stops



ATEX Version Available

6000 l/min

Typhoon Remote Controlled
and Manual Monitor

- Maximum Operating Pressure 14 bar
- Only 1.3 bar friction loss at 6000 l/min
- Field Changeable Stops



ATEX Version Available

8000 l/min

Monsoon Remote Controlled
and Manual Monitor

- Maximum Operating Pressure 14 bar
- Only 1 bar friction loss at 8000 l/min
- Field Changeable Stops



Nozzles - Fixed or Spinning Teeth

**110 - 2000 l/min Fixed,
Selectable or Automatic**



BLITZFIRE

2000 l/min

Portable Monitor



AUSTRALIA

Gaam Emergency Products-AU
Phone : 61394661244
Fax : 61394664743
iprice@tycoint.com
www.gaam.com.au



INDONESIA

Pt Palmas Entraco
Phone: 6221384 1681
Fax: 6221380 2660
sales@palmas.co.id



SINGAPORE

S.K. Fire Pte. Ltd.
Phone: 6568623155
Fax : 6568620273
houchin@skfire.com
www.skfire.com



CHINA

Shanghai Jin De Industry
Phone: 862136050599
Fax: 862136055599
sjinde@163.com
www.sjinde.com



JAPAN

Yone Corporation
Phone: 81758211185
Fax: 81758012263
t.yone@myad.jp
www.yone-co.co.jp



SOUTH KOREA

Shilla Fire Co., Ltd.
Phone: 820236659011
Fax: 820236639113
kofire77@hotmail.com
www.firekorea.com



HONG KONG

Rotter International Ltd.
Phone: 85227517770
Fax: 85227562051
jacky@rotter.com.hk
www.rotterbiz.com



MALAYSIA

Sentrix Technology Sdn Bhd
Phone: +603 8023-5228
Fax: +603 8023-5618
chong@sentrix.com.my
www.sentrix.com.my



TAIWAN

Yone Corporation
Phone: 81758211185
Fax: 81758012263
t.yone@myad.jp
www.yone-co.co.jp



INDIA

Foremost Technico Pvt Ltd
Phone: +91 (11) 2619 6982
Fax: +91 (11) 2616 6961
foremost@hathway.com
www.foremost-india.com



NEW ZEALAND

Tyco Safety Products
Phone: 6445608127
Fax: 6498270844
tsp.sales.nz@tycoint.com
www.tycoservices.co.nz



THAILAND

Anti-fire Co., Ltd.
Phone: 66 2 259-6898
Fax: 66 2 258-2422
sithichai@antifire.com
www.antifire.com



PHILIPPINES

Alliance Industrial Sales
Phone: 6328908818
Fax: 6328960083
alliance8_jcy@pacific.net.ph

For excellent quality fire fighting
equipment visit www.tft.com
and call your local distributor
for a demonstration.

**June 2009
Issue 30**



Front Cover Picture: The charred remains of a China Airlines plane lies on the tarmac on Japan's southern island of Okinawa August 20, 2007. Reuters/Hiroshi Adachi/Yomiuri (Japan)

Publishers

Mark Seton & David Staddon

Editorial Contributors

Brendan MacGrath, Tom Cortina, David Oldfield, Michael Lee, Christine Reimann, Jeff Heaton, Yasmin Butt, Naaman Shibi, Justin Kung

APF is published quarterly by:

MDM Publishing Ltd
The Abbey Manor Business Centre,
The Abbey, Preston Road, Yeovil,
Somerset BA20 2EN, United Kingdom
Tel: +44 (0) 1935 426 428
Fax: +44 (0) 1935 426 926
Email: mark.seton@apfmag.com
Website: www.mdm Publishing.com

©All rights reserved

Subscription Rates

Sterling – £50.00
AUS Dollars – \$100.00
US Dollars – \$70.00
(Prices include Postage and Packing)
ISSN – 1476-1386

DISCLAIMER:

The views and opinions expressed in ASIA PACIFIC FIRE MAGAZINE are not necessarily those of MDM Publishing Ltd. The magazine and publishers are in no way responsible or legally liable for any errors or anomalies made within the editorial by our authors. All articles are protected by copyright and written permission must be sought from the publishers for reprinting or any form of duplication of any of the magazines content. Any queries should be addressed in writing to the publishers.

Reprints of articles are available on request. Prices on application to the Publishers.

Page design by Dorchester

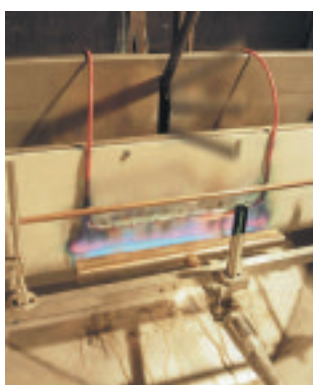
Typesetting Group Ltd

Printed in Singapore

Contents



19-22



31-33



35-40



43-46

05 NFPA Foreword

06-16 News & Product Profiles

**19-22 STOP PRESS!!
A Minor Fire Can . . .
For 6 Months**

**25-28 Aircraft
Rescue and
Firefighting Requires
the Best Foam
Available: AFFF**

**31-33 Fire
Performance Cables -
Setting the Standard**

**35-41 Monitors
Buyers' Guide - A look
at what's on offer
from the leading
manufacturers**

**43-46 Structural
Collapse Rescue**

**49-50 Workplace
Gas Measurement
Technology must be
Durable, Robust &
Reliable**

**53-57 Chemical
Protective Clothing -
Rewriting the
Standard**

**59-62 Let's Hear It
For The Fire Fighters**

**64-65 Automating
Inspection of Fire
Protection Systems
Using Handheld
Devices**

**66-71 Distributor &
Representative Office
Listing**

72 Advertisers' Index



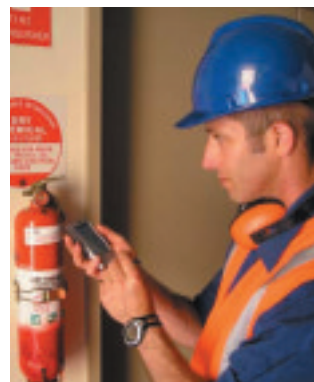
49-50



53-57



59-62



64-65



MDM Pu
WORLDWIDE

www.mdmpu

Hi-Tech P

FEATU

VIRTUAL ELECTRONIC MAGAZINES

BANNER ADVERTISEMENTS

FULL PDF FILE DOWNLOADS

LIVE LINKS

SIMPL
COMPA

MDM Publishing Ltd, The Abbey Manor Business Centre,

Tel: +44 (0) 1935 426 428

www.mdmpublishing.com

blishing Ltd
MEDIA

blishing.com **ortal Site** **RING**

FULL VIRTUAL ARCHIVE OF BACK ISSUES

LIVE REAL PAGE TURNING SOFTWARE

EVENTS PAGE

AND MUCH, MUCH MORE ...

Y NO **RISON**



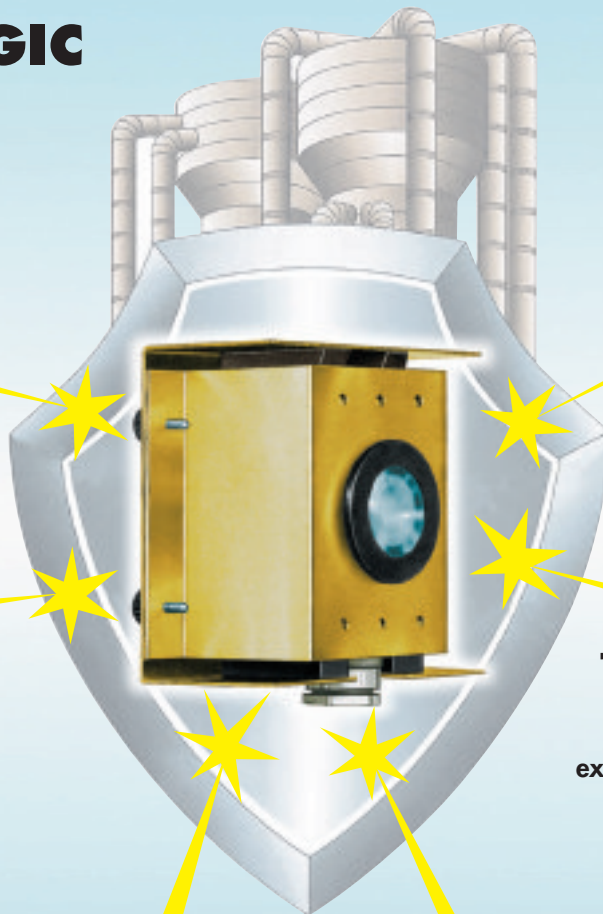
The Abbey, Preston Road, Yeovil, Somerset BA20 2EN, UK

Fax: +44 (0) 1935 426 926

www.mdmpublishing.com

CONTROL LOGIC Spark detector

designed for
dust collection
systems
to protect
storage silos
from the risk
of fire.



Sparks fly at high speed.

They travel at a hundred kilometres per hour along the ducts of the dust collection system and reach the silo in less than three seconds

The CONTROL LOGIC SPARK DETECTOR

is faster than the sparks themselves. It detects them with its highly sensitive infrared sensor, intercepts and extinguishes them in a flash. It needs no periodic inspection.

The CONTROL LOGIC system is designed for "total supervision". It verifies that sparks have been extinguished, gives prompt warning of any malfunction and, if needed, cuts off the duct and stops the fan.

ISO 9001

20137 Milano - Via Ennio, 25 - Italy
Tel.: + 39 02 5410 0818 - Fax + 39 02 5410 0764
E-mail: controllogic@controllogic.it - Web: www.controllogic.it



CONTROL LOGIC s.r.l.



IR FLAME DETECTOR
RIV-601/FA
EXPLOSIONPROOF
ENCLOSURE

For industrial applications indoors or outdoors where there is a risk of explosion and where the explosionproof protection is required. One detector can monitor a vast area and responds immediately to the fire, yet of small size.

BETTER TO KNOW IT BEFORE

Eye is faster than nose.

In the event of live fire the IR FLAME DETECTOR responds immediately

CONTROL LOGIC IR FLAME DETECTOR

the fastest and most effective fire alarm device
for industrial applications

Also for
RS485 two-wire serial line



IR FLAME DETECTOR
RIV-601/F
WATERTIGHT
IP 65 ENCLOSURE

For industrial applications indoors or outdoors where fire can spread out rapidly due to the presence of highly inflammable materials, and where vast premises need an optical detector with a great sensitivity and large field of view.

ISO 9001

20137 Milano - Via Ennio, 25 - Italy
Tel.: + 39 02 5410 0818 - Fax + 39 02 5410 0764
E-mail: controllogic@controllogic.it - Web: www.controllogic.it



CONTROL LOGIC s.r.l.



Foreword

NFPA Codes Around the World

Users of NFPA codes and standards are just about anybody, anywhere around the world – the owner of the corner supermarket, the fire chief, your electrician, the airplane pilot, the insurance inspector, the hospital nurse, consulting engineer, even your favorite restaurant manager! Whether they are used in a computer room in the Pentagon, a high rise in Shanghai, a power plant in the Middle East, the space shuttle, or perhaps in your local airport, NFPA codes and standards are used to provide safety to life and protection of property.

By Olga Caledonia

Executive Director
International
Operations, NFPA

Last June, during NFPA's Conference and Expo which took place in Chicago, I had the opportunity to moderate a conference/panel session entitled "Adoption of NFPA Codes and Standards Internationally". The panel of experts included, a global manufacturing company, insurance, engineering consultant and end-user. They shared with us a wide range of experiences from their individual perspectives and also presented a unique viewpoint regarding the use of NFPA codes and standards for specific applications outside of North America. Each member represented a specific region: Middle East, Asia-Pacific, Latin America and Europe. At the end of the panel discussion, a case study on NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs* was presented on the adoption of this internationally recognized standard, involving the tireless combined efforts of local volunteers, the country's national standards developer and an enthusiastically committed NFPA committee member.

Through the discussions, it became clear that NFPA codes and standards are recognized as worldwide leaders in establishing minimum levels of fire safety. While many countries of the world may have not formally adopted NFPA codes and standards, the local Authorities Having Jurisdiction (person or office charged with enforcing legislation) more often than not are open to their use for applications when the local documents do not address the specific use. In addition, it is our experience that in developing countries NFPA documents are accepted as internationally recognized practice.

There was a lot of debate regarding the compelling need for global enforcement, role and influence of global companies in all facets of business and economic development, making standards available in the local language and role of translations, adoption into the national standard, influence of ISO/IEC code-producing bodies, stronger presence through training and uniform standards, performance based designed and emerging markets, special application standards like NFPA 130, *Fixed Guideway Transit and*

Passenger Rail System, NFPA 850, *Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations*, NFPA 909, *Protection of Cultural Resource Properties – Museums, Libraries, and Places of Worship*, NFPA 414 *Aircraft Rescue and Fire-Fighting Vehicles*, NFPA 1600, *Disaster Emergency Management and Business Continuity Programs* or documents that can fill urgent gaps in the code or standard systems of other countries; and international representation on technical committees. There was also discussion around NFPA documents viewed as US centric and of course dialogue on NFPA 101, *Life Safety Code* took center stage!

NFPA's efforts to work with different countries to assist in improving existing levels of fire and life safety are not limited by national boundaries. We recognize that countries are entitled to develop or modify legislation to suit its own special needs and circumstances. As a developer of international model documents, NFPA accepts such changes as a legitimate part of the process and offers to cooperate in the creation and execution of a local process best qualified to perform this function. Through the process, NFPA's intellectual property rights must be acknowledge and respected. It is required that NFPA's authorship of the source model documents be officially acknowledged.

There is no question that NFPA has significant recognition throughout the four regions addressed by the panel. NFPA codes and standards become more widely used and adopted each year as increasing numbers of government, insurance, industry officials, and others recognize the scope of the world's fire problem. Today millions around the world are protected from fire by these codes and standards.

If you or someone you know is interested in learning more about NFPA's efforts to increase the use of fire, life safety and electrical standards in your country, please contact me directly at ocalledonia@nfpa.org. On behalf of everyone at NFPA thank you for letting us help you make the world a safer place!

Det-Tronics® Enhances Safety Surveillance System

System automatically detects and records safety incidents for remote or local viewing

Detector Electronics Corporation (Det-Tronics) has announced enhancements to its xWatch® camera and surveillance system (<http://xwatch.det-tronics.com>). Options include viewing hazards over an internet connection and recording activities before, during, and after hazardous events. Det-Tronics manufactures flame detectors, gas detectors, and safety systems and is part of UTC Fire & Security, a unit of United Technologies Corp.

The new options fortify surveillance systems by enabling users to:

- Immediately view industrial hazards remotely via a configurable IP address
 - Accurately detect hazards by integrating the explosion-proof camera with a flame detector
 - Record and review incidents for event analysis
 - Integrate surveillance seamlessly into a safety system
- Following are three of the many options available as part of a surveillance plan:



- a stand-alone, industrial-grade xWatch camera
- a camera partnered with a flame detector that provides accurate fire detection
- a surveillance solution integrated into a fire and/or gas safety system

With Class I, Div. 1 and NEMA 4X approvals from third-party approval agencies such as FM, CSA, CE, and ATEX, the xWatch camera, combined with a Det-Tronics flame detector, is ideally suited for remote and hard-to-access areas. The camera and detector view the same expanse. Continuous, real-time video provides the operator with surveillance capabilities during normal operation. If a fire is detected, the operator can quickly view a control-room monitor to assess the risk and initiate the appropriate response. Moreover, the DVR option allows users to evaluate the conditions leading up to and following the event.

"People working in hazardous areas recognize the need for accurate and fast flame detection. They also recognize the value of using video camera technology to see real-time fire events and record them," said Charlie Hoff, Product Line Coordinator at Det-Tronics. "Extensive tests have shown that detecting flames is best done with dedicated flame detectors, while visual assessment is best done with dedicated surveillance cameras. The xWatch camera coupled with a flame detector provides the best of both worlds."

PuriFire Water Purification Systems

In 2007, Darley received a Homeland Security Market Development Grant from the State of Illinois to develop a line of water purification systems. Darley offers a complete line of quickly-deployable water purification systems that can be used by first responders to aid in establishing and maintaining a potable water supply in the event of an emergency situation.

A total of 6 PuriFire (purifier) systems have been developed for both municipal and military applications. The municipal PuriFire systems are designed to work with the pump on a fire apparatus, or in conjunction with an in place water department. The systems are available as both portable self-contained units and systems that are integrated with fire apparatus.



For more information, please contact:
W.S. Darley, Inc.
Tel: +1 708 345 8050
Website: www.darley.com

For more information, please contact:
Detector Electronics Corp
Tel: +1 952 833 8661
Email: cathryn.kasic@det-tronics.com

Ecoguard First in Series of Fluorine-Free Chemguard Products

Chemguard will introduce fluorine-free *Ecoguard* 3% and 6% synthetic fire-fighting foam concentrate at the 2009 National Fire Protection Association Conference and Expo in Chicago. The first and only UL Listed fluorine-free foam for multiple applications, *Ecoguard* produces a strong and cohesive vapor-suppressing foam blanket for rapid knockdown and extinguishment and re-ignition protection in topside, handline, and sprinkler applications. The current formulation was developed for use on hydrocarbon-type fuels, such as diesel, gasoline, and kerosene.

The first in a series of Chemguard fluorine-free, eco-friendly formulations, *Ecoguard* provides dependable protection for a wide range of hazardous areas, including hydrocarbon fuel storage tanks, aircraft hangars, processing facilities, storage warehouses, truck and rail loading and unloading facilities, docks and marine tankers, and flammable liquid containment areas. *Ecoguard* also is suitable for mobile equipment.

Chemguard *Ecoguard* 3% and 6% foam concentrate was designed for use with in-line balanced pressure and pump-pressure proportioning skids, bladder tank balanced-pressure proportioning systems, around-the-pump proportioners, and handline and air-aspirating nozzles with fixed-eductor pickup tubes. *Ecoguard* is suitable for use with foam chambers, air-aspirating and various non-air-aspirating sprinkler heads and spray nozzles, air-aspirating foam nozzles, and foam makers for use on both floating-roof storage tanks and dike/bund protection systems. When accurately proportioned in accordance with Chemguard's recommendations, *Ecoguard* is effective using fresh, brackish, and salt water.

A substantially biodegradable formulation, *Ecoguard* presents the lowest environmental impact of any UL Listed Class B fire-fighting foam. Besides being free of perfluorooctyl sulfonate (PFOS) and perfluorooctanoic acid (PFOA), *Ecoguard* does not contain alkyl phenol ethoxylates, or organofluorine.

With *Ecoguard*, firefighting professionals have a choice between fluorine-free foam and short-chain fluorosurfactant foam for effective fire suppression. The superior environmental impact properties of *Ecoguard* make it attractive to municipal fire depart-

ments, as well as to industrial, marine, and military firefighters.

Chemguard Solutions

Founded in 1984, Chemguard has become a global leader with a reputation for exacting research and development, high-quality products, comprehensive customer support, and deep industry knowledge. ISO 9001:2000 certified, Chemguard serves the fire suppression and specialty chemical industries. In addition, Chemguard is developing a new line of durable foam-concentrate pumps for fire-protection systems.

Chemguard's Fire Suppression Division manufactures fire suppression chemicals, designs and manufactures firefighting equipment and systems, and provides engineering support. Chemguard's extensive line of durable and field-proven fire-fighting hardware includes fixed-system proportioning equipment, discharge devices, portable equipment, custom-engineered trailer- and skid-mounted foam systems, self-contained foam units, and large dry-chemical skid units.

To enable Chemguard to offer alternative products for environmentally conscious firefighting professionals, our Specialty Chemicals Division is developing a new line of fluorine-free products for introduction to the firefighting industry, in addition to new, short-chain, C6, fluorosurfactants and fluoropolymers. Chemguard also is developing and manufacturing low-fluorine-content aqueous film-forming foam (AFFF), alcohol-resistant AFFF (AR-AFFF), and other leading-edge, six-carbon-molecule foam products.

APF



For more information:
Chemguard, Inc.
204 South Sixth Avenue,
Mansfield, TX 76063, USA
Tel: +1 817 473 9964
Fax: +1 817 473 0606
E-mail: info@chemguard.com
www.chemguard.com

Draka takes the lead with new LPCB-approved armoured power cable

Draka claims to have become the only cable manufacturer in the UK to be able to offer installers a full range of third-party approved SWA [Steel Wire Armoured] power cables down to 4mm². The newly enhanced LPCB [Loss Prevention Certification Board] approved 600/1000V Firetuf Powerplus cable offering is available in two, three and four-core options with nominal conductor areas spanning from 4mm² to 400mm². The range also includes a 2.5mm² seven-core cable.

Firetuf Powerplus is designed to provide enhanced circuit integrity performance to meet the demanding requirements of BS 7346-6: 2005 (*Components for smoke and heat control systems: specifications for cable systems*). It incorporates high-performance materials to achieve the maximum 120-minute rating when subjected to the integrated testing of BS 8491: 2008 (*Method for assessment of fire integrity of large diameter power cables for use as components for smoke and heat control systems and certain other active fire safety systems*). This demanding regime involves flame irradiation exposure, direct impact and high-pressure water spray testing.

Powerplus cable provides the superior performance characteristics required by many of today's sophisticated fire engineering solutions. These have become increasingly commonplace, following the introduction of the Regulatory Reform (Fire Safety) Order 2005, and the more widespread utilisation of fire engineering principles and techniques that call for greater reliance on complex life and property protection systems and protocols.

Tyco Fire & Security appoints new National Manager

Tyco Fire & Security has appointed Glenn Tant to the newly created position of Fire Products Division National Manager for Australia, based at the company's Sydney office in Rydalmere.

With more than 18 years experience in the fire industry, Tant has been managing Simplex Time Solutions for the last eight years. Tant's new appointment will see him additionally responsible for Tyco's Simplex Fire Products and Exelgard brands and will involve him working closely with the business unit managers for each brand and driving growth in Tyco's Fire Products segments.

For more information, please contact:
Fire Products, Tyco Fire & Security
Tel: +61 2 9947 7550
Email: clhartley@tycoint.com



A particular benefit of the extension of the lower end of the Powerplus range – down from 10mm² to 4mm² – is that installers now have a third-party approved SWA cable that is suitable for smaller enclosures and terminals.

One important area where Firetuf Powerplus is coming to the fore is in buildings that are affected by Approved Document B (Fire safety) 2006 of the Building Regulations that came into force on 6 April 2007. This specifies fire performance in accordance with BS 7346-6, which defines the fire performance

requirements of various types of fire-rated cables for maintaining circuit integrity to protect people – both building occupants and fire and rescue personnel – and safeguard property and the environment. It impacts on a whole raft of fire safety systems, all of which

require a secure power supply that will retain its integrity in the event of fire. These include: automatic fire suppression installations; fire detection and alarm systems; fire compartmentation; smoke control and ventilation; sprinklers and wet risers; ventilation and shutters; and firefighting lifts.

For more information, please contact:
Draka
Tel: +44 (0) 1332 345431
Email: Firetuf@draka.com

Nano extends Hochiki's firelink detection offering

Hochiki has extended its FIRElink high-sensitivity smoke detection offering with the introduction of FIRElink-Nano. In common with other models in the range, it incorporates advanced semiconductor laser and electronics technology into a package that shows substantial savings in whole-life cost when compared with other systems on the market. Its introduction is expected to further expand the applications for the FIRElink range that includes smaller non-compartmentalised rooms; warehouses with racking; and electronic and electromechanical equipment.

The new FIRElink-Nano is a single-pipe system with a sampling pipe length for still air of 50 metres, with either two, six or ten sampling holes, depending on whether the fire risk is Class A, Class B or Class C. It comes as an extremely compact, low cost and easy to install package that uses what is called Perceptive Artificial Intelligence. This ensures

that it operates constantly at optimum sensitivity for the particular protected environment, without having to resort to complicated and expensive setting up. The system configures itself to provide the high sensitivity required for a "clean" environment, such as a computer suite, or the reduced sensitivity that is appropriate to a smoky or polluted atmosphere.

The high degree of sensitivity is achieved by



using what Hochiki calls "laser-based forward light scattering". This is responsible for the system's reliable early warning of a fire and the absence of false alarms, as it is able to discriminate between smoke and dust particles in the atmosphere. Remote monitoring of the system at a fire detection and alarm panel, or on a building management system control panel, is made possible by the inclusion of pre-alarm, fire and fault relays, and RS485 communication is built-in for

easy networking and remote communication. A Hochiki ESP or Enhanced System Protocol compatible APIC – Addressable Protocol Interface Card – is available for addressable systems.

Many of these systems are destined to be installed in buildings where conventional detectors are aesthetically unacceptable – such as museums, art galleries and heritage buildings – so a major plus point in the FIRElink Nano's favour is the compactness of the detector. It measures just 185mm wide by 225mm high by 105mm deep, and can be interfaced onto an ESP analogue addressable loop using an Hochiki CHQ-DIM Dual Input Module.

For more information, please contact:
Hochiki
Tel: +44 (0)1634 266 566
Website: www.hochikieurope.com

HAZMAT Training

Argon Electronics LLP is a world leading manufacturer of safe and realistic simulators for training in the use of chemical and radiological detection, identification and monitoring instruments. Using a common electronic technology base, users are able to combine complementary systems for the training of multiple personnel with different types of HAZMAT detection equipment in virtually any environment.

The Argon simulation system portfolio includes:

Handheld and personal alarm chemical detector training simulators:

- AP2C-SIM and AP4C-SIM (with S4PE-SIM also available)
- CAMSIM – variants available for all versions of CAM™
- ChemPro100-SIM.
- LCD-SIM.
- RAID-M100-SIM.

Chemical identification simulation training probe:

- HAPSIM-P for use with the HAPSITE® GC/MS family of instruments.

Generic radiation instrument training simulators:

- RADSIM DS-1 and SS1 for training in the principles of, respectively, alpha/beta and gamma radiation.

Specific radiation instrument training simulators:

- D-SIM contamination meter simulator.
- EPD-Mk2-SIM dosimeter simulator.
- RDS-200-SIM survey meter simulator.

Simulation training probes for use with real radiation detectors &/or simulators:

- GMP-11-SIM beta simulation probe for use with the RDS-110, RDS-120 and RDS-200 series of survey meters.
- Alpha/beta probe for use with the radiac meter in the AN/PDR-77 and AN/VDR-2 systems.
- Simulation probe for SAM-935 and SAM-940 spectrometers.

The individual systems enable a thorough comprehension of instrument operation to be taught as the foundation to critical operation capability for front line first responders. Recording of user operation errors for after action review adds further confidence by providing a high level of auditable consistency to training.

For instructors, the ability to exercise direct control over individual instruments provides the opportunity to instil an understanding of remedial action in the face of simulated equipment malfunction and the consequences of poor practice in decontamination procedure.

PlumeSIM

Instruction can now also be enhanced using the new Argon PlumeSIM classroom simulation software and instrumented wide area HAZMAT training system. Representing a substantial step forward in HAZMAT training, PlumeSIM retains all the benefits of Argon's individual simulation instruments and adds a new dimension to the combined breadth and depth that can be brought to classroom and live field exercises through remote instructor management of multiple simulator instruments under a



fully configurable 'virtual plume', in real time, over user selected mapping.

In the Planning Mode innovative system design uses common file format map images of the proposed training area. Easy-to-use menus enable the source type(s) and quantity to be set and adjusted, as well as the location and nature of the release source, as well as the desired environmental conditions. Areas of increased deposition and 'hot spots' may be marked. Exercise parameters can be saved for repeating defined scenarios with absolute fidelity.

In the Classroom Mode trainees use gamepad controllers to move themselves as icons around an on-screen display of the training area. The virtual plume scenario is activated, and subsequent 'contact' with a simulated agent will result in the appropriate activation of their simulation instruments which are connected to the control base by a short range radio link. All student 'movement' is recorded during the session and can then be played back for analysis prior to departing for the real field training area.

In the Live Field Exercise Mode the students are deployed to the external training area where the instructor can monitor their GPS marked location on the control base map via a long range radio link. Once again the virtual plume scenario is activated the display of the simulation instruments will indicate the appropriate response to any contact with a simulated source. Where environmental conditions inhibit the ability to obtain or maintain continuous long range radio communication, the selected scenario can be pre-loaded on the simulation instruments for timed activation.

APF



For more information please contact:

Argon Electronics LLP
Unit 16, Ribocon Way,
Progress Business Park, Luton,
Bedfordshire, LU4 9UR, UK
Tel: +44 (0) 1582 491 616
Fax: +44 (0) 1582 492 780
Email:
sales@argonelectronics.com
Website:
www.argonelectronics.com

Haztec Launch New IMPACT LED Warning Lights Certified to ECE R65

Model 3-3541 Beacon and Model 4-10409 Surface Mount Directional Warning Light

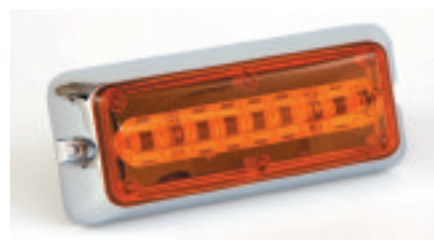
The fact that these products are certified to European Regulation 65 confirms the quality and that they are tested to high standards. Their construction passed the strict environmental testing along with the equally strict light emissions standard. This standard covers the light intensity at specific angles both horizontally and vertically. It also includes specific colour frequency along with flash frequencies. The latest Generation3 Ultra-High Brightness leds are utilised along with specially designed and manufactured internal optic lenses. Both



lights are multi-voltage of 10-35Volts and built in features include synchronization for connecting two or more lights for either alternating or simultaneous flash patterns. Other features include selectable flash patterns and low power options. Lenses are UV Stabilised polycarbonate and housings moulded cast alloy. As with all Haztec high quality led products both lights carry a five year warranty.

For more information, please contact:
Haztec International Ltd
Tel: +44 (0) 113 202 9115
Email: info@Haztec.biz

HAZTEC.BIZ
GLOBAL WARNING



Groupe-Leader Search and Rescue Equipment

Audio ResQ – Search and Rescue Equipment

Audio ResQ is the definitive life locator, for an easy and fast detection and location of trapped victims. When traditional means of detection (sight, sound) have been exhausted, when the dog-handlers have done their work, it is necessary to use high performance location equipment. Audio ResQ was developed to allow USAR Teams to go one step further in their search.

The use of up to 6 seismic sensors considerably widens the field of investigation. Once the victim has been detected, the rescue teams seek to establish contact with him/her.

Audio ResQ is equipped with a very sensitive microphone which is placed as close as possible to the victims in the ruins. Priority for communication is given to the victim. The reduced diameter of the communication probe is compatible with existing breaching equipment. A second headset connected to the Audio ResQ allows a translator or a doctor to work at the same time as the rescue crew. The control box is equipped with a low noise-output, very high gain adjustment amplifier and the intuitive use of settings for immediate operation of Audio ResQ.

Visiosearch – Search and Rescue Equipment

Visiosearch is the life locator for visual location of buried victims. In addition to being used by Search and Rescue responses in various conditions, Visiosearch also successfully provides clear and correct images for maintenance operations in industry and construction, customs inspection, police investigation.

Visiosearch is equipped with:

- A wide and high resolution display with the report of the camera position
- A coloured camera, outside diameter 47mm, adjustable illumination level to see up to 6m distance in dark conditions, an unscratchable sapphire front lens
- A camera rotation of 90° left, 90° right for a 270° total area viewed with wide angle camera opening.
- A high sensitivity speaker and microphone are integrated into the camera housing for ease of communication with the victim, even picking up a feeble victim's voice.
- An ultra lightweight telescopic probe, extremely resilient carbon fibre made with a total length of 2.4m unfolded.
- A stereo headset with microphone. Two headsets can be connected on the two sockets available.

SearchCam 3000 Sets New Standard for Technical Search and Rescue Cameras

President Gord Cook of CON-SPACE Communications announced today the launch of its new SEARCHCAM 3000, a technical search and rescue camera. Designed with input from Urban Search and Rescue teams from around the world, the SearchCam 3000 is setting a new standard for technical search and rescue cameras.

"Building on the success of the original SearchCam 2000, the new SearchCam 3000 incorporates forward-looking technology," Cook stated. "Rescue workers told us they wanted a camera that is durable, reliable, provides a good picture, has a good light source, is mobile, versatile and easy-to-use. The SearchCam 3000 is all of these things and more."

The SearchCam 3000 comes with interchangeable, waterproof camera heads that can be swapped on the fly, depending on what conditions rescuers are confronting. The camera can be expanded from 14 inches to 19 feet, eliminating the need to carry multiple cameras. Rescuers can also record video and capture still images of the search site which can later be used for post-incident evaluation or training purposes. "This camera was designed to give rescue workers everything they need and it eliminates redundant equipment," Cook stated. "It's setting a whole new standard for technical search and rescue cameras," he added.

For more information, please contact:
CON-SPACE Communications
Tel: +1 604 244 9323
Website: www.searchsystems.com

- Rechargeable battery pack with a running time of 4.5 hours without charging. The battery charge level is constantly on display.

Visio-Stab Controller – Search and Rescue Equipment

The Visio-Stab Controller alerts Search & Rescue teams engaged in operation. A harmless laser monitors any slight movement of unsteady buildings or potentially dangerous mass structures: floors, flooring tiles, poles, pillars, walls and facades damaged by earthquake, bombings, gas blast...

Provided with 2 x Ni/Mh batteries, which allow a 16-hour running time, Visio-Stab continuously detects any movement.

Set up on a telescopic tripod, Visio-Stab can detect a 5mm move at a 30metre distance. A telescope helps to precisely point Visio-Stab at the targeted building or unstable structure.

Various potential movements (step from 5mm to 100mm) can be selected. When occurring, the movement corresponding to the chosen step will activate an audible alarm.

For more information, please contact:
Groupe-Leader France
Tel: +33 235 530575
Website: www.groupe-leader.com

Urban Search and Rescue - (USAR)

The first thermal imaging cameras (tics) were used by the fire service over twenty years ago and within that time many alterations to both the technology and the



attitude of such technology have taken place. Whilst the technology of tics has developed rapidly within the fire market and the initial reason for purchasing a tic remains fire based search/rescue and overhaul, there are now more specialist areas opening up where the correct tic can play a major role.

With the improvements in technology this meant that the overall size, shape of the tic could be more 'manageable' as a hand held search and rescue tool and with the predetermined search and rescue layout already set by the earlier tics it has taken some time to see tics used in their different roles.

Seeking casualties among collapsed building scenarios has become a more realistic reality since the start of the century but there have been widespread natural disasters and freak weather phenomenon which have seen the use of the tic as a USAR tool. The tic can again highlight potential casualties and possible explosive situations. The reality again is that there are smaller, less robust tics designed purposely for such scenarios. Such purpose built tics have telescopic attachments with 360 degree adjustability and the ability to get into the areas where the casualties often are located.

Within the UK USAR teams are now being confronted with unstable climate patterns leading to freak flooding events, along with fallen structures, leading USAR teams toward a device which can lend itself to confined space; land and water; and fire search and rescue.

GB SOLO produce one such device: The SOLO S2 SAR. Available with either 17° or 50° field of view this camera is capable of man detection up to 1000 metres making it the ideal unit for water based search and rescue operations. In its 50° field of view form the camera offers 400 metre man detection but when used for confined

space work or fire search and rescue this unit is on it's own.

Weighing only 650g and measuring only 11.5cm x 7.5cm the S2 SAR offers much more than any other hand held tic. Available with up to 40,000 image capture facility, user defined colour mapping and wireless video recording facilities, the S2 SAR is used as a recording device as much as a real time SAR tool.

The SOLO S2 SAR is a lightweight and unique ergonomic design which enables both "hands free" or "traditional hand held" operation.

It can be used as an independent unit held and viewed similarly to a pair of binoculars or as a unit which interfaces and seals against BA face masks, gas masks or helmet visors.

Able to penetrate smoke and fog, the S2 SAR can lead USAR teams directly to the crash site and once in position the S2 SAR can either be used as a hand held unit, attached to a telescopic pole or personally donned in hands free position to search for casualties.

Tics are being used more and more in USAR operations along with aftermath appraisal for inspections of affected property which may have been affected by more than just smoke damage.

Whilst recording all data from temperature mapping to real time video recording for such as above, the S2 SAR is as straightforward to use as possible with readily rechargeable batteries, speedy method to locate the batteries within the unit and reliability based around the original US Navy spec.

APF

For more details on the SOLO S2 SAR or any other GB SOLO products, please contact:
GB SOLO Ltd,
Unit 10, 20 Park Farm Road,
Foxhills Industrial Estate,
Scunthorpe, North
Lincolnshire DN15 8QP, UK
Tel: +44 (0) 1609 881855
Email:
sales@gbsolo.co.uk,
or visit www.gbsolo.com

Innovative dry powder aerosol device put to the test

On May 6th DSPA.uk Ltd invited fire & rescue services and other fire professionals to view an innovative fire-fighting technology, which the manufacturers demonstrated could improve the speed of fire knockdown at incidents. The demonstrations were staged at Chiltern International Fire's fire & rescue services training facility near High Wycombe. Representatives of several fire brigades from around the country attended, along with other fire safety professionals.



Team photo 6th May (courtesy of Chiltern Fire)

With Bucks Fire & Rescue Service in attendance, three separate demonstrations were staged: a hydrocarbon pool fire, a flashover knockdown and a house fire. The DSPA-5 Dry Sprinkler Powder Aerosol fire suppression system is a lightweight, hand-held device, activated like a grenade by pulling a cord and throwing it towards the seat of the fire.

At all three scenarios, nobody had to enter the fire compartments to apply the DSPA-5 units. Delegates watched as the device, no bigger than a circular extension lead, contained the fully developed fires for a minimum of four and a half minutes. Paul Womack, Sales Director of DSPA-uk, says that, "In real life situations, this will buy valuable time for Fire Fighters as they prepare for entry to the scene of the fire".

Delegates were supplied with thermal imaging video clips from the most recent tests, carried out by Chiltern International Fire as an independent third-party agency. These clearly indicated the rapid reduction in the room temperature following the deployment of the DSPA-5.

The DSPA-5 system is in use by fire services, around the world, particularly in North America, Eastern Europe and the Netherlands. Other users include Japan, the Philippines and the Middle East. The system has been successfully tested in the manufacturer's own laboratories, as well as by organisations such as UL/ULC, BRE and RINA.

DSPA-uk has made available a considerable amount of test and technical data about the system to the delegates who attended and has pledged to give full training support to brigades willing to trial the DSPA-5 system. Director John Maxfield said, 'We are confident that our product will find a place in the fire services' armoury and we are looking forward to further discussions with the fire services represented. There appeared to be a genuine interest in the product and we were encouraged by the desire to find out more.'

DSPA-uk launched the entire DSPA product range at the International Firex at the NEC on May 11th to 14th. Paul Womack was particularly enthused by the high level of interest from visitors to their stand. "The versatility of the fixed installations was of particular interest to many visitors. These units are adapted for a variety of applications and will act as alternative solutions to Halon or other gaseous and sprinkler systems that require extensive and complex pipe work. They can operate as either standalone units or integrated into new or existing fire alarm systems."

DSPA-uk Ltd will distribute the DSPA products on behalf of DSPA.nl, part of the AFG Group, one of the largest fire prevention specialists in the Benelux region.

For more information, please contact:
DSPA-uk
Tel: +44 (0) 1342 310107
Website: www.dspaltd.com

PARAT® X-treme™ – Modular Helmet and Handheld Flashlights

Incorporating Aerospace Technology and Advanced Electronics

In exclusive partnership with Parat® – Schönbach GmbH & Co. KG, Germany, Pila® – Permalight (Asia) Co., Ltd., designs and produces Parat™ X-treme intrinsically safe flashlights and penlights are compliant with the latest ATEX and IECEx Norms and Standards.

Parat X-treme helmet mounted and hand-held safety lights are intended to be operated in and around hazardous explosive gas (Zone 1) and dust (Zone 21) environments and conditions.

Parat X-treme are of modular design setting new standards for safety flashlights:

- **Interchangeable Xenon and LED Light Sources:** Parat X-treme flashlights accept Xenon lamp assemblies as well as different LED emitters (white, amber) all of which can be substituted and interchanged freely.
- **Advanced Electronics and Power Management:** Parat X-treme LED PCB boards incorporate latest SMD technology using only high-quality, proven and certified components. Parat PX 1 models include a unique 'bi-polar' power management allowing alkaline batteries to be inserted in series irrespective of polarities.
- **Housings:** The PX 1 helmet and hand-held lights are available in non-conductive PC as well as in anti-static conductive XAG, an aerospace grade reinforced polymer of exceptional hardness which shields from Electro-Magnetic Interference (EMI), Radio Frequency Interference (RFI) and Electrostatic Discharge (ESD).
- **Environmental:** Parat X-treme flashlights are IP 68 certified. Bezels are O-ring and On/Off switches are hermetically sealed against gas and dust penetration; the housing is built to resist water immersion of up to 3m.
- **Batteries:** Recommended batteries have been tested and certified by authorised test laboratory (United Kingdom) for Parat X-treme.
- **Accessories:** Traffic wand, fibre optic attachments, holsters, helmet mounts, etc.

Parat® X-treme Models

1. **Parat PX 1 XAG Helmet & Handheld Flashlights** – Xenon and LED (white/amber). Certified for Danger Zone 1, IIC (Gas & Dust). Batteries: 4 x AA Alkaline. Colours: Silver, Red



2. **Parat PX 1 PC Helmet & Handheld Flashlights** – Xenon and LED (white/amber). Certified for Danger Zone 1, IIB (Gas & Dust). Batteries: 4 x AA Alkaline. Colours: Flame-yellow, Black and other colours offered as options.



3. **Parat PX 2 Penlight** – Xenon and LED Certified for Danger Zone 1, IIB (Gas & Dust). Batteries: 2 x AAA Alkaline. Colours: Flame-yellow, black, other colours offered as options.



4. **Parat PX 3 Power Penlight** – LED Not intrinsically safe. Water-resistant to 20 m. Batteries: 2 x AA Alkaline or 2 x rechargeable NiMH. Colours: Flame-yellow, black, other colours offered as options.



For more information, please contact:
Permalight (Asia) Co., Ltd.
Tel: +852 2815 0616
Website: www.pilatorch.com



**GO FOR IT. DON'T HOLD BACK.
PUSH YOUR EQUIPMENT TO ITS LIMITS.**

- FM, CE & AS 5062 Approved
- Manual &/or Automatic Detection & Actuation
- Approved For Use In Underground Mines

Ansul develops fire protection and suppression systems for non-road mobile equipment that let your operation work hard without compromising safety. A-101™ dry chemical, LVST™ liquid agent, and twin-agent systems suppress, cool, and help prevent fire reflash. From top to bottom, surface to underground, Ansul has a solution for virtually every application. **So go ahead, dig deep.**



www.ansulinfo.com/ma9



tyco
Fire Suppression
& Building Products

Raising the Bar for Fire Suppression Systems

In recent years, fires of catastrophic nature involving non-road mobile equipment such as large mining vehicles have resulted in heavy losses as a result of the irreversible damage that has been caused to these expensive machineries, and in some situations, even the loss of precious lives.

This said, this series of unfortunate incidents have served to expose the flaws and limitations of the fire suppression technology of yesteryears that is currently deployed by both mine operators and non-road mobile equipment today.

Clearly, the mining industry has many visible and unforeseen fire hazards. As such, any environment that involves flammable fuels, oils and hydraulic fluids, super-heated manifolds, turbocharger, engine blocks, flammable dust and explosives, will be the perfect platform for a disaster to occur.

The evolution of ANSUL® fire suppression technology

Before ANSUL vehicle fire suppression systems were introduced in the 1960s, the mining industry frequently experienced crippling losses due to fire hazards. The loss of expensive equipment such as; excavators, tunnel boring machines, harvesters, transit buses, and other heavy machines in hazardous and rugged environments, productivity and precious lives were all too common.

Today, Tyco Fire Suppression & Building Products through its ANSUL brand has raised the bar of industrial safety with the development of a new generation of fire protection solutions that detects, suppresses, and cools fires on non-road mobile equipment deployed in both underground and surface mine operations. The company is reinforcing its technological leadership by introducing state-of-the-art technologies that include twin-agent (dry chemical, liquid agent) suppression systems, triple IR detection systems and detection and actuation schemes.

These cutting edge solutions are not only more robust in the sense that they have the capacity to operate under a wider temperature range, they also feature numerous mounting options. With robust agent storage tanks that incorporate a welded steel tank and agent outlet sealed bursting disc assemble, the current ANSUL A-101™ is able to operate at extreme temperature between -54°C and 99°C (-65°F to 210°F). In comparison, traditional foam systems would function at temperatures of between 2°C and 60°C (35°F to 140°F).

ANSUL A-101™/LVST™ solutions now also come with more mounting options. Storage tanks can be mounted on different surfaces and angles, and are able to withstand being jolted and bumped on the most uneven of roads.

The ANSUL vehicle fire suppression system is approved by Factory Mutual (FM), Conformance



Europe (CE) and has an Australian approved to AS 5026. With commitment to offer the best vehicle fire suppression system, it also has designs that allow customers meet the U.S. Mine Safety and Health Administration (MSHA) fire safety requirements for underground battery charging stations that was introduced back in July, 2008.

A critical investment that offers one of the best returns

An investment in ANSUL fire suppression systems for non-road mobile equipment offers corporations one of the best possible returns on their investment. Where large machines are concerned, for instance, it takes only a single ruptured line to result in a huge, damaging and very costly fire.

Equipping these machines with an ANSUL A-101/LVS twin-agent fire suppression system is therefore a smart investment. It is, in fact, an investment that pays off at the first sign of fire, as the system activates itself to immediately put out flames. With the system, corporations protect themselves against the tragic loss of life, costly downtime, catastrophic injuries and excessive insurance premiums.

For over 40 years, ANSUL products have protected high-risk industries with the most trusted fire suppression systems available. In fact, the new

For more information, please visit www.ansul.com. If you are in the Asia Pacific region, please send your enquiries to sales-ap@tycofp.com

r Vehicle Fire m

range of innovative solutions have further been designed to cover nearly every aspect of non-road mobile equipment found in a variety of industries (including mining) to not only help reduce the risk of serious injuries to crew members, but also avoid unnecessary costs as a result from equipment repair and replacement which causes production and worker downtime.

High performance solutions greatly reduce risks underground and on the surface

Around the world, high-risk mining operators and heavy-equipment owners trust ANSUL solutions to protect their operations. Today they have more reasons to trust the following new ANSUL high-performance systems.

The ANSUL A-101 mobile equipment fire suppression system

This system discharges proven ANSUL FORAY® multipurpose dry chemical agent, quickly combating flames. With tank capacities from 10 to 250 lbs (4.5 -113.4 kg), the A-101 fixed-nozzle system can be designed to flood entire volumes with the chemical agent, or can be aimed at specific high-hazard areas.

Benefits at a Glance:

- Suppresses flames quickly and efficiently
- Floods entire volumes, or specific areas
- Protects and extends life of machinery
- Optimized for specific applications, with several versions available
- Anywhere in the world, trained ANSUL distributors can design, install and service this solution to offer ultimate protection for specific vehicles

The ANSUL LT-A-101/LVS twin-agent fire suppression systems

The ANSUL LT-A-101/LVS Twin-Agent Fire Suppression Systems provides the combined effects of dry chemical and liquid agents. While the FORAY dry chemical knocks down the flames, the LVS agent cools surrounding areas and helps minimize the possibility of reflash.

Benefits at a Glance:

- Provides maximum benefits with twin-agent approach
- Added liquid agent blankets fuel and cuts off oxygen while cooling the fuel and surrounding areas
- Helps prevent fire reflash
- Highly effective in applications where super-heated equipment is used

The ANSUL LVS-5 liquid agent fire suppression system

When paired with an A-101 dry chemical system, this compact new model is designed to provide

the benefits of a twin-agent system on low-profile equipment found in underground mining applications. Stored in a 5-gallon (18.9 L) tank, the LVS agent cools surrounding areas, helping to suppress the fire and prevent reflash. Additionally, because it is liquid, the LVS agent flows along the same path as burning fuels to reach and suppress fires in areas dry agents might not.

Benefits at a Glance:

- Ideal for smaller pieces of equipment with minimal room for installation
- Helps prevent reflash
- Cools the surrounding areas

Checkfire® detection & actuation systems

The matchless ANSUL CHECKFIRE detection and actuation systems provide detection, alarm, machine shutdown and actuation automatically, when required.

Benefits at a Glance:

- Resists shock and vibration with rugged control modules
- Features internal diagnostics and internal/external power sources
- Boasts thermal linear wire or spot detectors, with triple IR option
- Optimised for specific applications, with several versions available

Sharpeye™ 20/20 triple IR detector

SharpEye infrared detection provides advanced triple-IR flame detection. Added to existing linear wire or spot detection, the beginnings of fire are detected much sooner. SharpEye features include sensitivity selection, automatic built-in testing, compact size and 100-degree field of vision.

Benefits at a Glance:

- Provides advanced triple-IR flame detection
- Detects fires quickly
- Includes multiple features for maximum effectiveness

Red line® backup support

ANSUL RED LINE dry chemical cartridge-operated extinguishers are an ideal backup to the primary fire suppression system. These rugged, reliable handheld units are a proven means of extinguishing a wide range of Class A, B and C fires, and provide that extra measure of protection required by authorities.

Benefits at a Glance:

- Provides reliable and efficient means of manual fire extinguishment
- Suppresses Class A, B and C fires
- Supplies the additional means of protection required by authorities

APF

QUIC-LIFT Ladder Access Systems

Ziamatic Corp's QUIC-LIFT Ladder Access Systems are available for raising and lowering aluminum ladders and hard sleeves commonly carried on fire apparatus. It uses two units that are mounted on the side of the apparatus's body. The ladders and hard sleeves are kept close to the vehicle when lowered allowing for apparatus to be positioned into tight situations.

There are three different units. Model LAS will mount on either a horizontal or vertical surface, the LAS-BHM mounts on vertical surfaces only. It is commonly used when a shelf is not available for the unit to rest on. And the third unit is the HSS, which is for mounting hard sleeves. The systems are constructed of high-strength aluminum castings and are controlled by a double-throw momentary switch. At the flick of the switch, the system lowers the ladders to a comfortable level for retrieval, reducing the chances of back injuries and allowing for more accessible storage space. The units can be easily retro-fitted onto existing pumpers or tankers and only requires 12 VDC. A flashing light kit is provided to produce a visual signal when the ladder access system is out of the stored position. Mounting brackets may be attached to castings for storage of folding ladders and pike poles. The total height, above the mounting shelf, is 33" for ladders and 30" for hard sleeves. The unit lowers ladders and hard sleeves 31" from the stored position. The unit is powered by either two durable high cycle electric actuators or self contained hydraulic actuators, both of which have been tested to over 5,000 operating cycles. The systems are rated up to a maximum load of 300 lbs and can have a manual or electric locking system added on for additional security.

Zico's Horizontal Ladder Access Systems, model HLAS, is designed to store fire department ground ladders horizontally over side compartments on fire apparatus. The basic unit is mounted in the center of the compartments and a door is typically put in front to cover the basic unit from view (Door is not provided). The base casting may be bolted to the top of the side compartment and/or to the hose bed as well. By using a center mounting unit, less compartment space is lost helping to create maximum storage without compromising on safety. The electro-hydraulic system with a built-in electric safety latch only requires 14"W x 12"D x 56"H for mounting. The Electrical system has a 60-amp draw and requires an 80-amp fuse. Both the control and electrical panels are provided



with the unit. Each HLAS system comes complete with a flashing light kit to indicate when the system is out of the store position. Like the LAS, the Horizontal Ladder Access Systems is also constructed of high-strength aluminum castings and has a maximum lifting capacity of 300 lbs. A variety of optional equipment is available for the HLAS. Some of the options are pike pole mounts, folding ladder mounts and hard sleeve mounts for the top of the unit. An audio/visual alarm system can also be added to provide an audio indication, as well as visual, when the system is out of the stored position. The HLAS is also available to carry strictly hard sleeves or a portable tank. All available combinations can be found on our website at www.ziamatic.com

Both the standard Ladder Access Systems and the Horizontal Ladder Access Systems are built with the highest of standards of quality and have been on the market and field tested for over 12 years.

APF



For more information, please contact:

Ziamatic Corporation
10 West College Avenue
Yardley
PA 19067
USA
Tel: +1 215 493 3618
Fax: +1 215 493 1401
www.ziamatic.com

Zico

QUIC-LIFT ACCESS SYSTEMS



PORTABLE TANK SYSTEM

- Powered by two electric actuators
- Model PTS stores tanks vertically

PTS

OUTSIDE ARM SYSTEM

- Powered by hydraulic cylinders
- Model OALS stores ladders over head

OALS

HLAS



HORIZONTAL SYSTEM

- Powered by hydraulic cylinder
- Model HLAS for ladders (shown)
- Model HPTS for portable tanks

LAS



VERTICAL SYSTEM

- Model LAS for ladders (shown)
- Powered by two electric actuators
- Model LAS-HA for ladders
- Powered by two hydraulic cylinders
- Model HSS for hard sleeve
- Model LAS-BHM mounts on hose bed wall

Zico has a system for your application

10 West College Ave. Yardley, PA 19067 || 1-800-711-FIRE || www.ziamatic.com

THERE IS MORE THAN ONE WAY TO SUPPRESS A FIRE.



THE EXPERTS AT FIKE SELECT ONLY THE BEST.



ECARO-25®

Exceptional, cost-effective
clean agent fire protection.
DuPont™ FE-25™



PROINERT®

Unique inert gas valve
yields significant system
and installation savings.



DuPont™ FM-200®

Waterless clean agent fire
suppression solutions for the
modern workspace — only
from DuPont.

Fike doesn't just offer protection. We develop technologically advanced fire suppression systems that protect your bottom line, as well as your facility and assets. **ECARO-25**, **PROINERT**, **DuPont™ FM-200®** are USGBC LEED® recognized.

At Fike, we're known for:

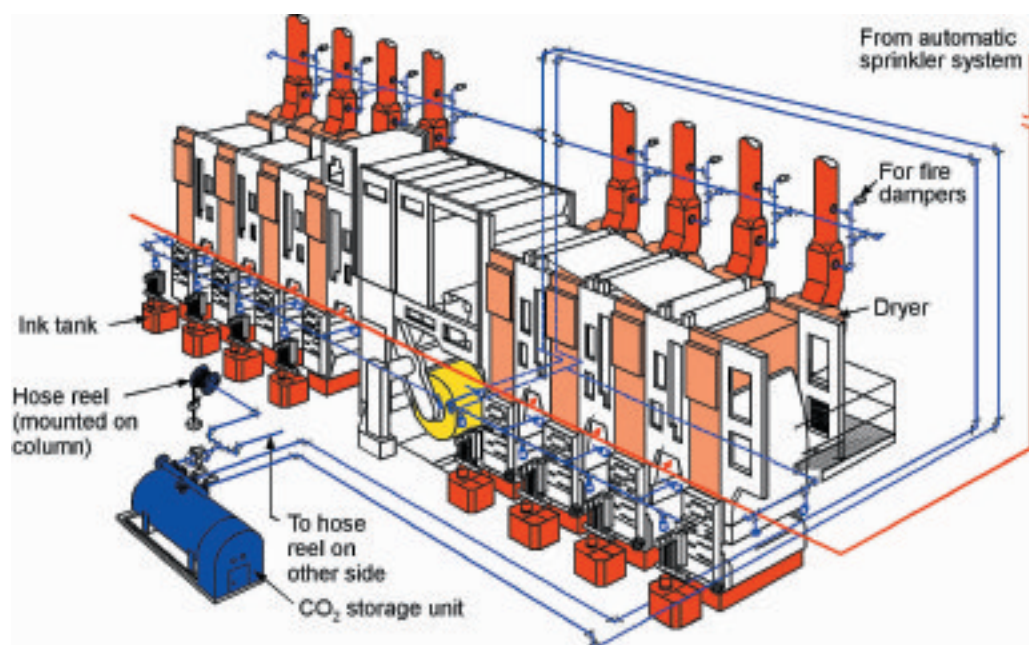
- Innovative, reliable products
- Fast, responsive service
- Creating a partnership with our customers

Fike®

**FIKE HAS THE MOST COST-EFFECTIVE, INNOVATIVE
FIRE SUPPRESSION SOLUTIONS AVAILABLE.**

WWW.FIKE.COM
+60-3-7859-1462

Printing presses contain all the ingredients for a highly disruptive fire: flammable liquids, rotating equipment, high value and long repair and commissioning periods. © 2009 FM Global. Reprinted with permission. All rights reserved



Stop Press!

By Brendan MacGrath

A minor fire can . . . for six months!

FM Global

A printing press' Achilles heel?

Just after Friday midnight, in late 2007, a telephone directory printing plant in Europe suffered a relatively minor fire. The combustion of the paste inks and blanket-wash solution essentially damaged a single tower of the multiple colour lithographic printing press. Fortunately, the facility was provided with a ceiling-level fire sprinkler system. This halted fire spread to the combustible roof. This thereby prevented a much larger, and in all likelihood, a total loss of the building, which housed five large presses.

The follow-up investigation revealed, however, that despite the relatively small fire-damaged area, that the press would have to be idle for at least six months, the time taken to carry out the necessary repairs to the single tower section. If the option were taken to replace the damaged equipment, this could increase to nine months! While overall, the successful action of the ceiling sprinkler system ensured that the plant was able to continue with at least 80% of its production operations during the press' downtime, there was still a significant impact to the site and above all, their customers.

While some sprinkler protection was also provided under an elevated walkway along the side of the press, the location of the seat of the fire, as well as the width and openings up through the machine did not cause them to operate. Per the investigation, it was determined that had these sprinklers operated, they would not have been effective given their remote location from the seat of the fire, as well as the many obstructions preventing their discharge from reaching the fire. Overall, this loss revealed that the provision of protection immediate to those shielded areas of the printing press which process flammable liquids is essential.

A very similar fire event on the same type of press in North America in January this year (2009) produced almost identical results. Just a single tower suffered major damage. Again, the roof-level sprinkler system kept the building intact and allowed the other five presses to continue operations, practically without any interruption. It may take eight months to effect the repairs, during which time the press is shutdown. In addition, it is important to remember that following repairs, several additional months can be required to re-commission the entire press before quality product at an acceptable throughput is achieved.

Loss statistics

FM Global loss data confirms that these types of fire scenarios are one of the leading causes of damage and subsequent interruption in the printing industry. Overall, fire incidents in the industry can be separated into the following categories: (1) incidents occurring on the press; (2) incidents affecting equipment needed for continued press operation such as dryers, exhaust systems, thermal oxidizers, and dust collection; and (3) pre-press operations such as ink mixing rooms, roll paper storage, plate washers, etc. that could expose the press to damage.

Thirty-nine such printing industry losses were reported to FM Global over the 8-year period from 2000 to 2007. The total gross loss amount was over US\$164,000,000 (2007 dollars). Twenty four of the 39 fire incidents (62% in terms of frequency) started on the press with a total gross loss amount of over US\$110,000,000 (2007 dollars). Therefore press fires represent 72% of the total printing industry economic loss caused by fires and explosions.

A study of these losses concluded that the main

A fire demonstration involving a plastic IBC filled with diesel fuel (flash point 39°C) – after only four minutes, the contents have released and the fire has spread to entire available surface. © 2009 FM Global. Reprinted with permission. All rights reserved



factors contributing to large losses in pressrooms are the following:

- 1** Inadequate automatic fire protection: either no protection present or shielded areas from ceiling sprinklers not provided with protection.
- 2** Inadequate cleaning schedules allowing ink buildup on press skirts, support structure, cat walks, presses, and press components.
- 3** Damage to a press may result in a recommendation to return sections of the press to the manufacturer for inspection and in some cases, it has proven more economical to replace the press.
- 4** Severe damage may result in lengthy downtimes due to extended press replacement times and the need to test the press once it has been repaired or replaced.

Know Your (Flammable) Stuff

Unfortunately, it's sometimes only in the wake of a large fire that printing machine operators appreciate the hazards of the inks and other liquids used in their pressrooms. Lithographic printing generally uses oil-based inks which usually have relatively high flashpoints ranging from 200°C to 300°C. But don't be deceived by their difficulty of ignition: the heat generated from an overheated bearing is sufficient to ignite and sustain combustion of these inks causing very significant damage to a press section. Additional "culprits" are blanket wash solutions. These liquids have flashpoints typically lower than 100°C with a range of 30°C to 60°C not being uncommon. Per occupational and transport safety regulations, such liquids are not typically classified as "flammable" liquids and as such, do not have flammable hazard warning labels e.g. in the EU, the flammable symbol is not required if the liquid's flash point is over 21°C. Yet despite compliance with such regulations, experience demonstrates that these liquids can and do burn, as evidenced by the two examples cited above, greatly aggravating the consequences of a fire in these areas of a press often shielded from fire protection systems.

This disparity illustrates the challenge faced by the industry when trying to identify and manage the hazards of such liquids present in these facilities. This confusion is further compounded by the use of terms such as "highly flammable", "flammable", "combustible" and "non-combustible". FM Global has in recent years adopted the definition of a flammable liquid as "any liquid with a fire point". In FM Global property protection standards (available free at www.fmglobalsdatasheets.com), a distinction is often made between those having flash points less than and greater than 93°C. This

is in order to determine whether a particular liquid stands a chance of being extinguished or not by a water-based protection system such as fire sprinklers; over 93°C, this is possible while under 93°C, this cannot be reliably achieved.

Overall, the intent of this simplified classification is to highlight that, liquids which can be ignited, or "ignitable liquids", can and do present a hazard to industrial facilities and therefore, they all need to be identified, analysed and suitable measures taken to reduce the consequences of a fire involving them.

Intermediate bulk containers – "Why all the fuss?"

Intermediate Bulk Containers (IBCs) increasingly are being used to handle various liquids, including those that are ignitable such as inks and solutions used in the printing industry. The cause of this more frequent usage is twofold: not only has it become more economical to order liquids in bulk, but larger quantities in one container offer the convenience of less frequent ordering, storage and movement of containers.

The U.S. Department of Transportation (DOT) and the United Nations define IBCs as rigid or flexible portable packaging, other than cylinders or portable tanks, designed for mechanical handling and measuring with a capacity of between 119 and 793 gal. (450 and 3,000 lit.). They may be constructed of any single material (e.g., metal or plastic) or a combination of materials (e.g., a composite of metal and plastic) capable of passing the requisite performance test criteria. Composite IBCs are those constructed of a combination of materials. IBCs also include containers referred to as portable or tote tanks.

Despite the undeniable advantages of using IBCs, awareness of the hazard they may present to your facility is crucial. It is, after all, inherently hazardous to fill a plastic or metal IBC with an ignitable liquid, given the potential for release of that liquid in large quantities. If ignited, a large pool of flammable liquid will create a severe fire exposure that puts your facility at significant risk of a major loss. For example, the release from a single 1,000 lit. container can form a 25 m diameter pool covering a surface area of some 500 sq m. That's large enough to run under multiple sections of adjacent presses and which if ignited by any of the many potential ignitions sources, will result in a fast-spreading fire scenario far beyond the design capabilities of the sprinkler system and floor drainage provided in a typical press room.

This already challenging scenario is likely to be greatly compounded if additional plastic IBC

FM-200®

WATER MIST

CO2

FOAM

ALARM/DETECTION

AIR SAMPLING



JANUS
FIRE SYSTEMS™

EXPERIENCED
MANUFACTURER.
CUSTOMER FOCUSED.

YOUR GATEWAY TO A NEW KIND OF SERVICE

+1.219.663.1600

www.janusfiresystems.com

1102 Rupcich Drive

Crown Point, IN 46307 U.S.A.

FM-200® is a registered trademark of E.I. du Pont de Nemours and Company.

FIRE RAY® 5000

The ultimate MULTIHEAD auto-aligning beam detector



- Ease of Installation
- Ease of Set-Up
- Ease in Operation
- Easy!

- Easifit First Fix System
- Ground Level Control
- Laser Assisted Alignment
- World-wide approvals

- Contamination Compensation
- Building Shift Compensation
- Multi-Lingual Installation Guide
- Auto Beam Alignment in under 18 minutes

A range of accessories are available:-



Universal Bracket
for the F5000



Reflective Beam Prism Plate
(on a Universal Bracket)



Range of Prism
Installation Accessories

FIRE RAY® - The leading light in smoke detectors



FIRE
FIGHTING
ENTERPRISES

9 Hunting Gate, Hitchin
Hertfordshire SG4 0TJ

T +44 (0) 1462 444740

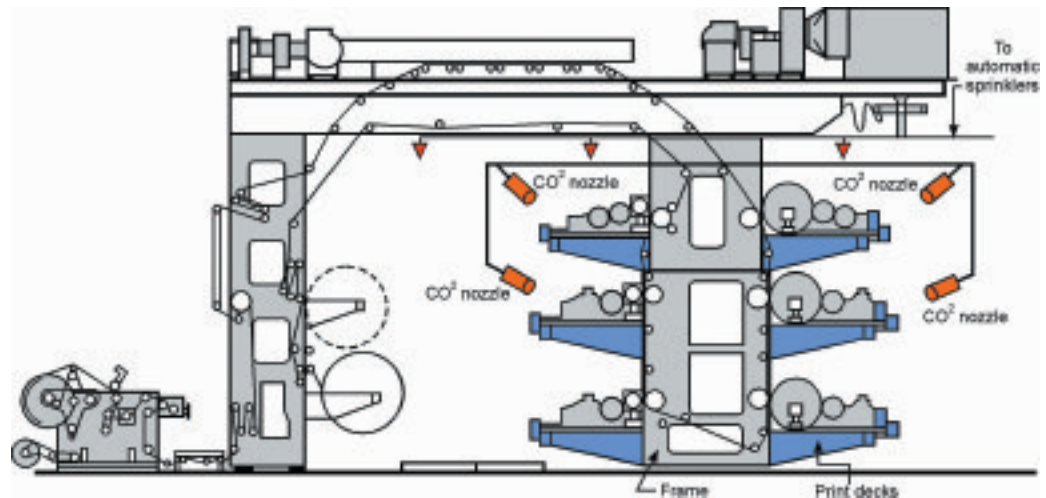
F +44 (0) 1462 444789

E sales@ffeuk.com

W www.ffeuk.com



Protection for stack type flexograph press – carbon dioxide and automatic sprinkler system protection for a stack-type flexography press using ignitable inks



containers with ignitable liquids are present which when fire-exposed, would cause their failure and the release of their contents which will contribute to further major fire spread.

FM Global and other organisations such as the UK HSE continue to conduct and invest in significant research into the fire hazards posed by these containers (e.g. see: www.hse.gov.uk/research/rrpdf/rr564.pdf). While FM Global has found plastic IBCs containing ignitable liquids with flash points over 260°C (e.g. certain vegetable oils) can, under certain conditions, be used in a typical production building, for all other fluids with lower flash points, there are no proven, practical protection solutions which can prevent the release of their contents. This remains a significant challenge with work on-going to find possible solutions.

Printing plants contain a myriad of fire hazards ranging from roll paper storage, ink preparation and dispensing to the actual press operations themselves.

For now, FM Global's advice on such containers can be found in its Data Sheet 7-29 titled Flammable Liquid Storage in Portable Containers (available on line). In summary, they should not be used or housed in main production areas. Instead, they should preferably be placed in detached buildings, located at a safe distance, and provided with adequate drainage and containment systems.

Get the wet stuff on the red stuff

The fire incidents mentioned above illustrate the importance of adequate protection for shielded areas of a press. FM Global is in the process of revising its loss prevention guidance for printing facilities. As an example, the figure provides a schematic of the recommended protection for a flexograph-type press. Note the combination of CO₂ gas and automatic sprinklers under the shielded press areas where inks are applied. Just like with in-rack storage sprinklers, these sprinklers will operate promptly and effectively when they

are in intimate contact with a fire's heat and flames. To ensure this, they need to be installed in the right locations and in adequate number. There is probably no better opportunity to do this as successfully and cost-effectively than when constructing a new press!

Loss experience has shown that one of the major factors in gas extinguishing systems not operating properly is a reliance on manual operation. A fire-control strategy may be to have operators attempt to control and extinguish the fire with portable extinguishers and, if not effective, then manually activate the gas system. Incidents have shown this can be effective.

In others, however, the delays in operating the gaseous extinguishing system, e.g. less prompt detection during night shifts, resulted in surface temperatures high enough to reignite ink when the gas dissipated and concentrations decreased.

Another factor is lack of proper inspection, testing, and maintenance of gaseous protection systems. In one incident, a fire occurred on a rotogravure press. Operators left the area in anticipation of the CO₂ system actuating, but the system did not operate. Fortunately, the sprinkler system did operate thereby preventing major damage.

Conclusion

Printing plants contain a myriad of fire hazards ranging from roll paper storage, ink preparation and dispensing to the actual press operations themselves. The intent of this article is shed light on one particular area, namely the potential for very significant interruption to a press, up to nine months in some cases, arising from a fire involving high flash point and "non-flammable" inks and liquids.

Experience shows that ceiling-level sprinkler systems can provide reliable protection against fire spread to the building structure and to adjacent press equipment, thereby allowing the facility to continue operations.

However, without adequate fire protection in shielded press areas, by means of sprinklers and gaseous systems, the need for extensive repairs or possibly replacement of a press section can shutdown a unit for the best part of a year, with several additional months often required for re-commissioning to achieve quality product at an acceptable throughput.

APF

FM Global is a leading commercial and industrial property insurance company and risk management specialist. If you have comments or questions on this article, please contact the author, Brendan MacGrath, Manager, International Standards Group at email: brendan.macgrath@fmglobal.com or Tel: +33.1.46.93.97.00

Ship Halon Phase Out

GIELLETM
www.giellemarine.com

Retrofit with Gielle Clean agent fire suppression systems

- Utilize existing piping
- 1 to 1 cylinder/nozzle replacement
- Existing Halon Systems / Existing HCFCs Systems
- Express service
- Worldwide 24h service
- Full range of International Approvals

Imo Halon Banking authorized
FP.1/Circ.37 - Jan 2009



Gielle / info@giellemarine.com



It's This Simple:

C6 Fluorosurfactants + C6 Foam Stabilizers

= BEST AR-AFFFs and AR-FFFPs

— “Best AR-AFFF and AR-FFFP Agents” meet the most stringent fire performance specifications with the lowest fluorochemical content. Fluorochemicals in “Best Agents” should neither be derived from nor degrade into PFOA or its higher homologs. In addition, “Best Agents” meet environmental requirements proposed by US and foreign regulatory agencies.

— ONLY Dynax offers a family of C6 Fluorosurfactants and C6 Foam Stabilizers for the production of low-viscosity 3x3, 1x3 and 1x1 AR-AFFF and AR-FFFP agents meeting “Best” environmental and fire performance requirements. The same applies to AFFF and FFFP agents derived from Dynax C6 Fluorosurfactants. All Dynax C6 Fluorochemicals are non-flammable and free of corrosive halide salts.

Dynax C6 Fluorosurfactants and Foam Stabilizers

Dynax Product	Ionic Type	Agent Application Guide			
		AFFF	AR-AFFF	FFFP	AR-FFFP
Fluorosurfactants					
DX1030	Anionic	●	●	—	—
DX1040	Anionic	●	●	—	—
DX1080	Nonionic	●	●	●	●
DX1090	Nonionic	●	●	●	●
DX1025*	Anionic	●	●	—	—
Foam Stabilizers					
DX5011	Anionic	—	●	—	●
DX5022	Anionic	—	●	—	●
DX5065**	Anionic	—	●	—	—
DX5066**	Anionic	—	●	—	●

* Blend of Fluorosurfactants ** Blend of Fluorosurfactants and Foam Stabilizers

US EPA PFOA Stewardship Program

By 2010: 95% Reduction of facility emissions and product content level of PFOA, precursor chemicals that can break down to PFOA and related higher homolog chemicals.

By 2015: Elimination of PFOA, PFOA precursors and related higher homologue chemicals from emission and products.

DYNAX CORPORATION

PO Box 285, Pound Ridge, NY 10576 USA

T 914 764 0202 techinfo@dynaxcorp.com

F 914 764 0553 www.dynaxcorp.com

dynax
FLUOROchemicals

*Pic courtesy of
Reuters/Hiroshi
Adachi/Yomiuri (Japan)*



Aircraft rescue and firefighting requires the best foam available: AFFF

I was looking over the abstracts for an upcoming foam seminar at which I will be speaking and noticed a presentation by the Chief Fire Officer at a small international airport. According to the abstract the airport fire department has switched to using a less effective “fluorine-free” foam in order to appease the local environment agency. All I could think of after reading the abstract was that I am glad I don’t have to fly into that airport!

By Tom Cortina

**Fire Fighting Foams
Coalition**

All joking aside, it is surprising and disappointing to see an environmental authority convince a fire department to use a less effective foam for a critical life safety application such as crash rescue firefighting over concern for the potential for a small amount of persistent but low-toxicity chemicals to be released to the environment. Although runway crashes of aircraft do happen at airports around the world each year, they are an infrequent occurrence at any particular airport, and so the risk of extensive groundwater contamination at any individual site from foam discharge will be very small. At the same time the risk from fire to passengers and ground personnel

when such a crash does occur is very real, and in that situation you would hope that the airport is using the most effective product available to extinguish the fire.

Fluorosurfactants are a key ingredient

Fluorosurfactant-containing foams, in particular aqueous film-forming foams (AFFF), are the most effective agents currently available to fight Class B flammable liquid fires at airports and in military, industrial, and municipal settings. This fact has been consistently proven in fire tests done over the last 30 years and in tests that are being performed today. This exceptional fire-fighting effectiveness of AFFF is



SOLBERG

Solberg offers products of high quality and within the highest technology standards to the international fireprotection market

FIGHTING THE FIRE DRAGON



WITH CLASSIC AFFF/ATC, MODERN ORGANOHALIDES FREE FOAMS OR CLASS A FOAMS



RE-HEALING FOAM™

Organohalides free foams



ARCTIC FOAM™

AFFF/ATC foams



FIRE-BRAKE FOAM™

Class A foams

Head Office Norway	Australia/Asia
Solberg Scandinavian AS Olsvollstranda N-5938 Sæbøvågen Norway	Solberg Asia Pacific Pty. Ltd. 3 Charles St, St Marys, 2760, NSW Telephone (612) 9673 5300 Fax (612) 9673 5303

Emergency Stock Hotline
(Norway)
+47 56 34 97 00
(Asia Pacific Region)
+612 9963 3148




www.solbergfoams.com

due to the formation and spreading of an aqueous film formed on top of lighter hydrocarbon fuels. Only fluorosurfactants can provide AFFF with the required low surface tension and positive spreading coefficient that enable film formation. It is this film formation capability that gives AFFF its name and its effectiveness against flammable liquid fires. AFFF agents provide rapid extinguishment, burnback resistance, and protection against vapor release.

3M used a process called electrochemical fluorination to manufacture the fluorinated components of the fluorosurfactants contained in its AFFF formulations. Fluorosurfactants produced by this process both contain and degrade into chemicals known as PFOS (perfluorooctyl sulfonate) and PFOA (perfluorooctanoic acid). Other competitive manufacturers use a process called telomerization to produce the chemical components of the fluorosurfactants contained in AFFF agents. Chemicals produced by this process are generally referred to as telomers or fluorotelomers. With the withdrawal of the PFOS-based products due to their persistence, bioaccumulative and toxic properties (beginning in May 2000) and their subsequent regulation by various national governments, there has been a substantial shift from PFOS-based AFFF agents to equally effective AFFF agents containing telomer-based fluorosurfactants.

Fluorine-free foams

As a result of the concerns raised by the PFOS issue, foam manufacturers continue to evaluate many types of potential products that do not contain fluorosurfactants. Efforts to date have not yielded working products with fire performance equal to film-forming foams. Some fluorine-free foam can provide an alternative to AFFF in some applications, but they are not currently able to provide the same level of fire suppression capability, flexibility, and scope of usage. A recent paper from the University of Newcastle that shows that even the best available fluorine-free foams would need to be replenished three times as often as AFFF to provide the same level of fire protection.¹

Fluorine-free foams are often championed as "environmentally-friendly" alternatives to AFFF. Although such foams may not contain fluorine, their environmental profile related to biodegradation, acute toxicity, chemical oxygen demand (COD), and biochemical oxygen demand (BOD) is typically no better than fluorine-containing products and in many cases is not as environmentally responsible in use as AFFF. A recent study of commercially available fire fighting foam agents indicates that fluorine-free foams are at least an order of magnitude higher in aquatic toxicity than AFFF agents.²

An important consideration in assessing the risk of any foam will be its effectiveness in extinguishing the fire and preventing re-ignition. A fluorine-free foam may appear to present less risk to the environment because it does not contain persistent chemicals. But if it takes significantly longer and requires more foam to extinguish the fire, then it may actually present a greater risk, including the potential for loss of life and/or high value property.

Firefighter safety

All of the currently available fluorine-free foams rely upon having a good enough foam blanket in

terms of expansion ratio and drainage rate to overcome the inherent problem of fuel contamination of the foam blanket. This requires the use of air aspirating branch pipes or nozzles in order to achieve the necessary level of foam quality, which is a step backwards for firefighter safety.

The use of non-aspirating discharge devices, such as variable pattern water fog nozzles, provides two very important safety factors for firefighters. First, since none of the available energy of the system needs to be utilized by an air aspirating venturi at the discharge device, the range from that device will be maximized. Distance from the fire is always a key to firefighter safety. Second, when using a variable pattern water fog nozzle, the firefighter has the ability to change his stream pattern to a full fog for personnel protection against a thermal event ("left for life – right for fight").

The use of non-aspirated film-forming foam provides an added benefit in terms of speed of knock down and control of the fire as well as the ability to quickly cover the areas where the foam blanket has been disrupted. Again, these two factors improve firefighter safety and when used in operations such as crash fire rescue, are

The use of non-aspirated film-forming foam provides an added benefit in terms of speed of knock down and control of the fire as well as the ability to quickly cover the areas where the foam blanket has been disrupted.

absolutely essential in terms of overall safety and success. These are some of the factors that led the Federal Aviation Administration in 2006 to require US airports to be equipped with AFFF that meets the US military specification (Mil-F-24385F), one of the most respected foam standards in the world.

Environmental update

In my last article that was co-authored by Dr. Stephen Korzeniowski of DuPont (June 2008 issue) we reviewed all of the latest science related to the environmental effects of fluorosurfactants. Since that article there has been a new study published by SFT related to fluorochromicals found at fire training facilities in Norway. Although the study does not contain any new conclusions, it has drawn interest within the foam industry.

The SFT study confirms the findings of previous studies that the likely ultimate biodegradation products of the fluorosurfactants used in currently manufactured AFFF agents are persistent, but are not considered to be significant environmental toxins. The low bioaccumulation values developed in this study reinforce previous assertions of the general safety of these products. Because these studies were done at fire training areas where foams were released uncontrolled numerous times over many years, the findings should not be used

to assess the impact of a one-time use of a fire-fighting foam to extinguish a fire, which would result in significantly smaller contaminant concentrations. Current accepted practice is to use fluorine-free training foams whenever possible as well as to collect and treat foam discharges when fluorine-containing foams are used for training or testing.

The three main fluorochromicals found in the SFT study – PFOS, PFOA, and 6:2 FTS (6:2 fluorotelomer sulfonate) – have been found previously in groundwater studies from fire training facilities in the United States.³ PFOS and PFOA were likely contaminants and/or biodegradation products of the ECF-based fluorosurfactants contained in AFFF agents primarily manufactured by 3M prior to 2002. 6:2 FTS is a likely biodegradation product of the telomer-based surfactants contained in currently manufactured AFFF agents (manufactured since the 1970s). Neither of these

Dr Sthamer – Hamburg
Provides a full range of
ICAO Certified Foams

**FOAM
FIGHTS
FIRE**

Proven Reliability.

**24/7 Emergency Supplies
From Stock**

Synthetic Foams

- Moussol APS
- Moussol FF **NEW!**
- Sthamex AFFF
- Sthamex
- Sthamex class A

Protein Foams

- Fluor-Foamousse
- Foamousse FFFP
- Foamousse OMEGA
- Foamousse

Ready To Use Foams

- Fettex
- Mousseal-C
- Mousseal-CF
- Mousseal-ATC

Training Foams

**24/7
EMERGENCY
SUPPLIES**
+49 40 736 16 80

We offer a comprehensive range of high performance and environmentally friendly foams.

Dr. STHAMER HAMBURG

Head Office and Factory Hamburg
Liebigstrasse 5 · D-22113 Hamburg
Phone +49 40 736168-0
Telefax +49 40 736168-60
E-Mail: info@sthamer.com · www.sthamer.com

International Sales Contact
Mr. Jan Knappert
Phone +44 (0) 7795 101770
E-mail: jknappert@sthamer.com

ISO 9001:2015
CERTIFIED COMPANY

compounds (PFOS or 6:2 FTS) was used directly 'as is' in the AFFF agents, as was cited incorrectly in the SFT study. As noted above they are contaminants and/or biodegradation products of the more complex fluorosurfactants that are the key functional ingredients in AFFF.

The SFT study does confirm previously reported data that 6:2 FTS is neither bioaccumulative nor biopersistent. The bioaccumulation factor (BAF) values for 6:2 FTS in earthworms from the SFT report and in rainbow trout from previous studies⁴ are 100-1000 times lower than EU regulatory criteria for bioaccumulation.

The BAF values were slightly higher for 6:2 FTS than for PFOS and PFOA in the SFT study. For this reason we would expect advocates of alternative foams to argue that 6:2 FTS has similar environmental properties to PFOS and therefore the use of telomer-based foams should be limited. We would argue that the SFT study results do not change the basic conclusion from a broad range of existing data that 6:2 FTS is not similar to PFOS in either its physical or ecotoxicological properties.^{5,6,7,8} Recent studies on AFFF telomer-based fluorosurfactants likely to break down to 6:2 FTS show it to be generally low in acute, sub-chronic,

The SFT study confirms the findings of previous studies that the likely ultimate biodegradation products of the fluorosurfactants used in currently manufactured AFFF agents are persistent, but are not considered to be significant environmental toxins.

and aquatic toxicity, and neither a genetic nor developmental toxicant. Both the AFFF surfactant and 6:2 FTS were significantly lower than PFOS when tested in biopersistence screening studies that provide a relative measure of biouptake and clearance.⁹

PFOA is not likely to have come from fluorotelomer-based AFFF in any significant amounts. The fluorotelomer-based surfactants used in AFFF agents are not made with PFOA and PFOA is not used in the manufacturing process. Current unintended trace quantities of PFOA in fluorotelomer-based AFFF will be virtually eliminated under the US Environmental Protection Agency (EPA) PFOA global stewardship program. Under the program telomer producers have committed to 95% reductions of PFOA, PFOA precursors, and related higher homologue chemicals by year-end 2010 and are working toward the elimination of these chemicals from both plant emissions and finished products by year-end 2015.

Members of the Fire Fighting Foam Coalition that make telomer-based fluorosurfactants and AFFF agents are in position to meet the goals of the global stewardship program before the 2015

target date with a family of all C6-based fluoro-surfactants that provide the same fire protection characteristics with reduced environmental impacts. Incorporating these new fluorosurfactants will require some reformulation and likely some type of re-approval of most current AFFF, FFFP, and fluoroprotein foam products between 2010 and 2015.

PFOS is not completely gone

Although the manufacture and import of PFOS-based foams is banned in the United States, Canada, and the European Union, it is our understanding that these foams are still being manufactured in China. One of the reasons for this continued production may be a misconception that PFOS-based AFFF agents are more effective than telomer-based AFFF agents. This is simply not true. AFFF agents are equally effective whether they contain PFOS-based fluorosurfactants or telomer-based fluorosurfactants. The PFOS-based AFFF agents previously sold by 3M, and the telomer-based AFFF agents currently sold by companies such as Kidde, Ansul, and Chemguard, all meet the same material specifications of the International Standards Organization (ISO Standard 7203), Underwriters Laboratories (UL Standard 162), and the US military (Mil-F-24385). PFOS-based and telomer-based foam concentrates are used interchangeably in the same equipment and at the same concentration levels by military and industrial users around the world. Considering the significant differences in toxicity and environmental effects between PFOS and telomer-based foam agents, it seems logical for China to make the switch as most of the rest of the world has done.

APF

References

1. Sealability Properties of Fluorine-Free Fire Fighting Foams by Ted Schaefer, Bogdan Dlugogorski, and Eric Kennedy, University of Newcastle (2007).
2. 96-hour LC50 Value in Fathead Minnows (flow-through test), Report of tests on six fire fighting foam agents performed by Aqua Survey Inc., Flemington, New Jersey, USA and 96-hour LC50 Test in Fingerling Rainbow Trout, Report of tests on six fire fighting foams agents performed by Harris Industrial Testing Service Ltd., Nova Scotia, Canada.
3. Moody, C.A., Hebert, G.N., Strauss, S.H., Field, J.A., 2003. Occurrence and persistence of perfluorooctanesulfonate and other perfluorinated surfactants in groundwater at a fire-training area at Wurtsmith Air Force Base, Michigan, USA. *Journal of Environmental Monitoring* 5, 341-345.
4. DuPont 2009. H-27901: Bioconcentration and Bioaccumulation in Rainbow Trout, *Oncorhynchus mykiss*. Unpublished draft report, DuPont-22737 Draft.
5. DuPont 2007a. H-27901: Static, Acute 96-Hour Toxicity Test with Rainbow Trout, *Oncorhynchus mykiss*. Unpublished report, DuPont-21909.
6. DuPont 2007b. H-27901: Static, Acute 48-Hour Toxicity Test with *Daphnia magna*. Unpublished report, DuPont-21910.
7. DuPont 2007c. H-27901: Static, 72-Hour Growth Inhibition Toxicity Test with the Green Alga, *Pseudokirchneriella subcapitata*. Unpublished report, DuPont-22048.
8. DuPont 2007d. H-27901: Early Life-Stage Toxicity to the Rainbow Trout, *Oncorhynchus mykiss*. Unpublished report, DuPont 22219.
9. Serex, T. et al, 2008. Evaluation of Biopersistence Potential Among Classes of Polyfluorinated Chemicals using a Mammalian Screening Method. SOT 2008 Poster #958.



Bio-ex
Advanced Quality

Bio-Ex is a manufacturer of
**a complete range of synthetic & proteinic
fire-fighting foams**
Hi-Ex, AFFF, Alcohol Resistant, Class A and
Fluorine Free Foams (100% bio-degradable).
**Approved to
EN 1568**

BIO-EX S.A. - Z.I. La Petite Olivière - 69770 Montrottier - FRANCE
Tél. +33 (0)4.74.70.23.81 - Fax +33 (0)4.74.70.23.94 - export@bio-ex.fr
www.bio-ex.com



ORCHIDEE

There is no better way to extinguish.

- *environmentally friendly*
- *bio-degradable*
- *outstanding fire performance*
- *most cost-efficient*
- *approved according to National and International Standards:
EN, UL, ICAO, IMO, GOST and others*

POWDERS / DRY CHEMICALS

- ABC types
- BC types
- D types

FOAM LIQUID CONCENTRATES

- Aqueous Film Forming Foams (AFFF)
- Protein and Fluoroprotein Foams (P, FP, FFFP)
- Alcohol Resistant Foams (AFFF- and FP-, FFFP-AR)
- Synthetic Multi-Expansion Foams (ME)

WATER ADDITIVES (for extinguishers and fixed installations)

- INILAM[®] for class A fires
- SC-1 for class B fires
- Premix for class A and B fires

SPECIAL AGENTS

- Orchidee F for kitchen fires
- Forest Fire Agents
- BIO Foams

Contact our International Sales Offices for more info:

Germany:
Fon: +49 (0) 6203 934 - 0
Fax: +49 (0) 6203 934 - 150
Mail: contact@orchideegermany.com
www.orchideegermany.com

France:
Tel: +33 3 22 41 30 89
Fax: +33 3 22 41 32 88
Mail: contact@orchideefrance.com
www.orchideefrance.com

ONLY FIRETRACE IS FIRETRACE

OTHER TUBE-BASED SYSTEMS
CLAIM TO BE LIKE FIRETRACE.
THEY ARE NOT.



INSIST ON GENUINE
FIRETRACE SYSTEMS
FOR PROVEN FIRE
SUPPRESSION.

+ Only FIRETRACE INTERNATIONAL Systems offer the extensively tested Firetrace brand solutions with listings and approvals from CE, FM, UL, ULC and more than 25 other international agencies on agents such as Dupont FM-200, 3M Novec 1230, CO₂ and ABC dry chemical.[†]

+ Only FIRETRACE INTERNATIONAL has 20 years of experience with more than 65,000 systems protecting equipment worldwide

+ Only Genuine FIRETRACE SYSTEMS have the tested and proven reliability you and your customers require

Never compromise your reputation by using impostor, untested and unapproved systems – be sure you are using genuine Firetrace.

FIRETRACE®
AUTOMATIC FIRE SUPPRESSION SYSTEMS

Call +44 (0) 1293 780390 (Europe, Middle East, Africa)
or +1 480 607 1218 (US and elsewhere) or e-mail info@firetrace.com
to see why Firetrace is the right solution for your fire protection needs.

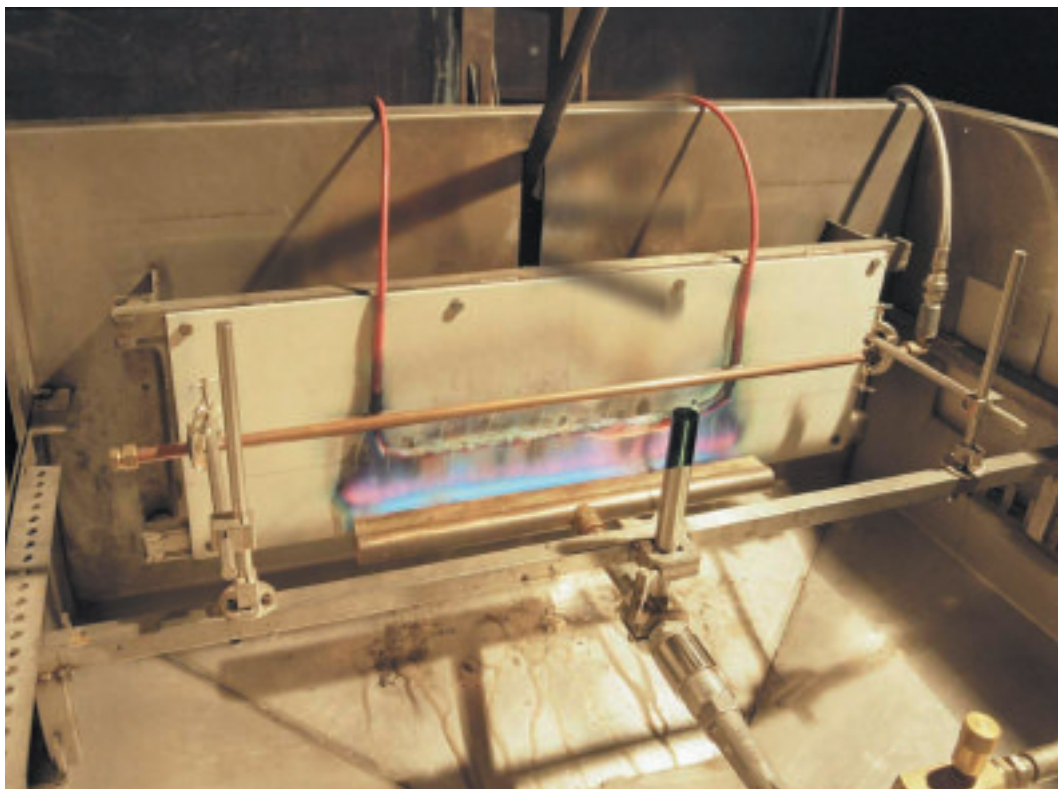
www.firetrace.com
www.firetrace.eu



Firetrace® is a registered trademark of Firetrace USA, LLC / Firetrace Ltd. All unauthorized uses of the Firetrace trademark shall be prosecuted to the fullest extent permitted by the law.

[†] Listings and Approvals vary by system and agent.

Picture courtesy of
Draka UK



Fire performance cables – setting the standard

Draka cables have been specified for many of the world's headline construction projects, including the new Venetian Resort Hotel in Macau and the latest expansion of Hong Kong's mass transit system. Here, David Oldfield, Product Development Manager, describes the changes in cable fire performance requirements that are having an impact throughout the Middle East and Asia Pacific region. He also highlights the significance of new requirements for circuit integrity power cables for critical building safety systems.

By David Oldfield

Product Development
Manager, Draka UK

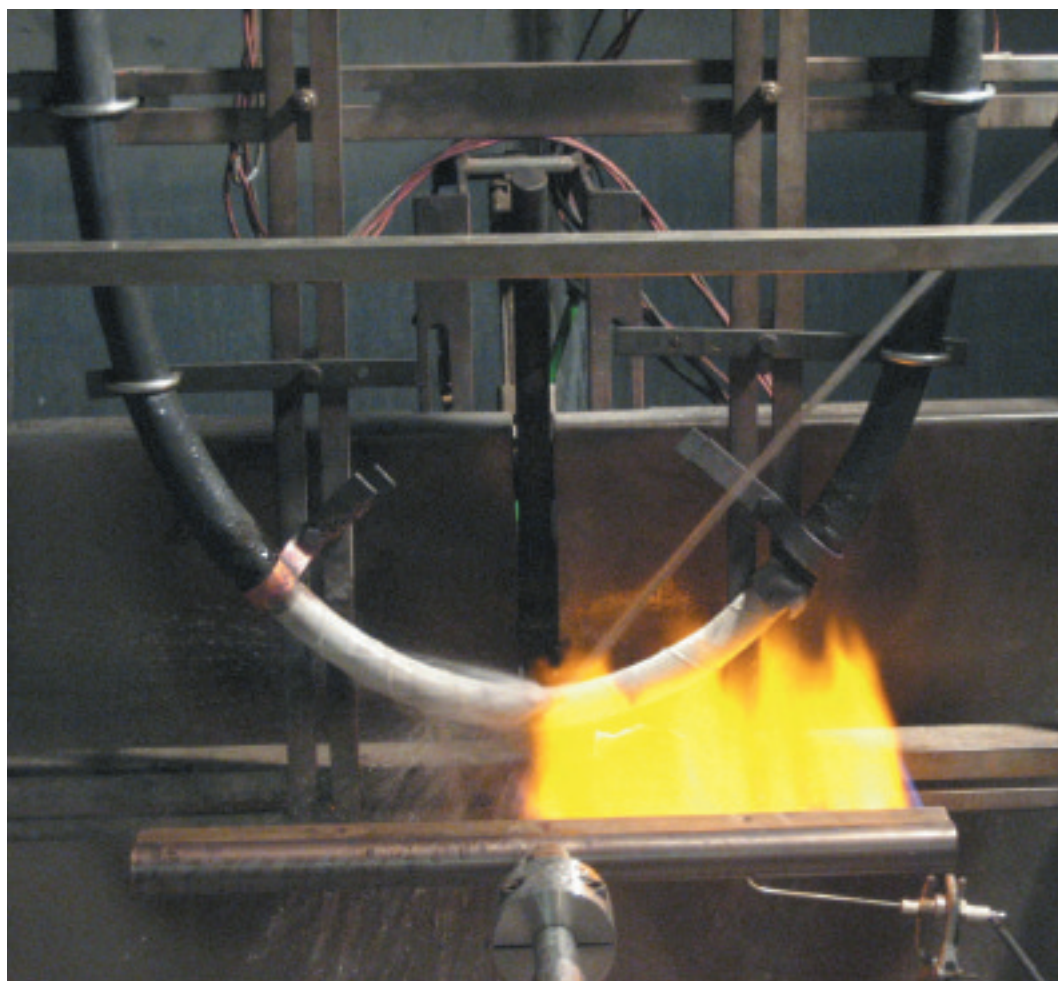
The development of cables with improved fire performance has been ongoing for over 20 years and continues apace today on a global basis, along with the evaluation of product and performance standards. These moves have resulted in considerable improvements globally in fire safety, particularly in environments where public safety is paramount, such as public assembly buildings, across the mass transit sector, in maritime applications and throughout the offshore industry.

The development of reduced fire hazard cables has eliminated the problems associated with the combustion of halogenated polymeric materials that were used in the manufacture of many earlier generation products. Halogen Free Low Smoke –

OHLS – cables are now freely available in a variety of wiring and power options, to suit all building applications. Their performance is recognised internationally as making a major contribution to fire safety in public buildings.

In Europe, the UK led the way in the adoption of reduced fire hazard cabling, and in devising a comprehensive set of cable performance testing standards. These standards include requirements for smoke production, acidity evaluation, flame retardancy and, in appropriate cases, for assessing the circuit integrity of cable. One very recent milestone was the decision of the EC Standing Committee on Construction to establish a classification table for cables in buildings, under the provision of the Construction Products Directive. This table

Picture courtesy of
Draka UK



defines classes of cable fire performance in terms of flammability, smoke production, flaming particles and acidity.

A new fire test protocol has been prepared as part of EN 50399-2007 (*Common Test Methods for Cables under Fire Conditions*). This assesses performance against the classification table and is based on a modification to the IEC 60332 (*Test on Electric and Optical Fibre Cables under Fire Conditions, Test for the Vertical Propagation of Flame*). The test measures fire growth rate, total heat release and peak heat release, in addition to other criteria such as flame spread, which is the main concern of the existing IEC (International Electrotechnical Commission) test. This new test enables more definitive comparisons to be made between cable types. However, the extent to which the provisions of EN 50399-2007 are embodied in regulation remains to be defined.

The importance of circuit integrity

As the latest revision of UK legislation relating to the fire performance of fire alarm cables has now been around for a few years, the majority of specifiers and installers working to this standard are familiar with its main requirements. However, the availability on the market of an increasing number of cables, coupled with a growing international awareness for the need to adopt what might be described as “best practices” means that it is high time for a number of important issues to be finally resolved.

So, what needs to be addressed? Certainly it is

essential to move quickly to a point where specifiers and installers can confidently rely on manufacturers’ cable ratings; cable fixing needs to be consistently undertaken to a higher standard; manufacturers’ recommendations regarding the bending of cables must be adhered to, and cable jointing needs to be undertaken to a standard that does not potentially impair installations’ integrity.

Cable classification

In the UK, for example, fire performance cables for fire alarm installations fall into two categories, defined as Standard and Enhanced. These performance levels are determined by testing procedures described in BS EN 50200: 2000 (*Method of Test for Resistance to Fire of Unprotected Small Cables for use in Emergency Circuits*) and BS 8434: 2003 (*Methods of Test for Assessment of the Fire Integrity of Electric Cables*). Standard cable is acceptable for the majority of installations, whereas Enhanced cable is required in clearly prescribed buildings. These are: buildings where cables are required to operate longer due to phased evacuation; buildings over 30 metres high that are not protected by sprinklers; buildings with critical signal paths to areas where people may remain for some time during a fire; and buildings where a fire risk assessment identifies the need for enhanced performance. Indeed, demand for this Enhanced cable is expected to grow with the increased international trend for buildings to be designed along fire safety engineering principles, rather than prescribed measures.

Fire integrity is essential for cables used in fire detection and alarm systems, emergency lighting and public address installations, and where providing power to other fire safety systems. Modern systems used in buildings, where increasingly fire engineering principles are linked to fire risk assessments, are often complex and critical, and the systems frequently need to function for a considerable period of time after a fire has been detected.

This led to the introduction of new levels of circuit integrity in the 2002 revisions of BS 5839 (*Fire Detection and Alarm Systems for Buildings*), with the rating for Standard cable being set at 30 minutes and at 120 minutes for Enhanced cable. The test protocols differ significantly from those in BS 6387 (*Specification for Performance Requirements for Cables Required to Maintain Circuit Integrity under Fire Conditions*) by being “integrated”, simultaneously applying fire, mechanical shock and water exposure to the sample cable.

Cable performance for critical systems

Fire performance data cables are now an emerging reality and data transmission performance criteria have been drafted. At the same time, changes to alarm cable fire performance are now well established and understood and it is widely recognised that significant improvements in cable reliability have been achieved. Hence, attention has recently been focussed on the performance of cables providing essential power supplies to other critical fire safety systems.

Systems for smoke control and ventilation incorporate dampers, shutters, automatic door hold-open devices, fans and vents – all require secure power supplies during the evacuation and fire fighting phases. These means of escape need to be indicated by appropriate illumination and secure emergency lighting. Also, firefighting facilities require secure power supplies and fire fighting lifts and rising mains need to function longer than most other systems.

The design and performance requirements for fire integrity power cables in the UK market were established in 1996 with the publication of BS 7846 (*Electric Cables – 600 / 1000V Armoured Fire-resistant Cables Having Thermosetting Insulation and Low Emission of Smoke and Corrosive Gases When Affected by Fire*), and the market for this type of cable is currently satisfied by the “F2” performance classification. This standard has in recent years been subjected to similar criticism to that directed at BS 6387 regarding lack of integration of the test elements. In addition, recommendations have also been put forward for the need for more direct impact and higher pressure water applications.

Advocating these more stringent requirements led to the publication of BS 7346-6 in 2005 (*Components for Smoke and Heat Control Systems – Specification for Cable Systems*). The cable test protocol was published as BS 8491:2008 (*Method for Assessment of Fire Integrity of Large Diameter Power Cables for Use as Components for Smoke and Heat Control Systems and Certain Other Active Fire Safety Systems*).

This test applies direct mechanical impact to the cable under fire conditions and also applies water at the end of the test period, simulating the application of water from a fire hose. This requirement



Picture courtesy of Draka UK

has been adopted for all essential fire safety system applications in the UK and will surely give rise to the introduction of new products to comply with the exacting standards.

The need for integrated testing

There is increasing recognition of the importance of the fire performance of the “cable system” in providing an adequate level of safety, and BS 5839-1: 2002 defines this as the cable, any joints, and the means of cable support. Hence, a key recommendation is that the performance of all of these “cable system” elements should mirror the performance of the cable, and that the cable manufacturer’s recommendations should be followed or the manufacturer’s guidance should be sought.

In Europe, tests to assess the performance of cable systems are the exception rather than the rule, and certainly no harmonised standard currently exists. That said, there is an SCC (Standing Committee on Construction) Mandate M117 for the investigation of large scale testing, including system elements, and a working party has now been established to conduct the investigation.

Internationally, there is presently only one reference point for a large scale circuit integrity test for cables and their installation ancillaries, and this is the German standard DIN4102-12 (*Fire Behaviour of Building Materials and Building Components*), a furnace test that subjects the cable to a temperature rise with respect to time, in accordance with the ISO curve. Ratings are assigned as of 30, 60 or 90 minutes. The furnace is oil-fired and simulates fire conditions similar to those found in a fully developed building fire. Cables are installed, together with appropriate trays, cleats or ladders, and these are loaded to their full rating by the application of appropriate weights. Onerous though this large scale test is, significantly the cables are not exposed to the application of water to stimulate sprinklers or firefighting hoses.

It will no doubt be several years before the results of these investigations are embodied in a European standard, but one thing is certain – the drive to improve standards and produce cables that enhance the safety for people and property will continue.

APF

David Oldfield is Product Development Manager at Draka UK and has been involved in the design and manufacture of electric cables for the past 35 years.

Foam Concentrates and Foam Systems for all applications



DAFO FOMTEC AB P.O Box 683 SE-135 26 Tyresö Sweden

Phone: +46 8 506 405 66 Fax: +46 8 506 405 29
E-mail: info@fomtec.com Web: www.fomtec.com

Akron Brass Introduces Trident HFRT-10 High Flow Monitor

AKRON MONITORS offer greater reliability and unmatched superior performance in situations when second best is not an option. Akron is introducing its newest High Flow Monitor Style 3356. The new Trident HFRT-10 monitor will deliver up to 2000 GPM (7600 LPM) and when combined with Akron's Style 3624 1700 GPM foam tube, the Trident has reach capabilities of up to 90 meters with FFFP Foam. You no longer need to worry about re-positioning your truck with rotation capabilities up to 380°. To meet the demands of the industry, multiple control options and a variety of nozzle options are available. All units exceed NFPA 414, ICAO and FAA requirements.

For more information about the new Akron Brass Trident™ Monitor, call your local authorized Akron Brass distributor or the Akron Brass Customer Service Department at 1-800-228-1161.



Founded in 1918, Akron Brass is a worldwide marketer and manufacturer of high performance fire fighting and rescue equipment. A Premier Farnell company, Akron Brass is ISO 9001: 2000 registered and has an excellent reputation for developing and manufacturing innovative products.

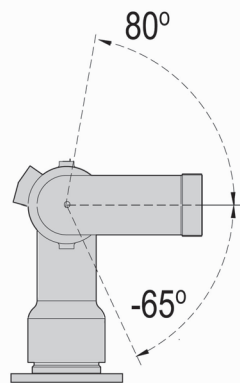
For more information, please contact:
Akron Brass Company
 P.O. Box 86
 Wooster
 OH 44691, USA
 Tel: +1 330 264 5678
 Fax: +1 330 264 2944
 Website: www.akronbrass.com

Big can be beautiful when it comes to fire fighting monitors

With the introduction of the new Titan range, ANGUS FIRE has completed the biggest change to its range of fixed and mobile fire monitors in over 20 years.

Angus Fire monitors, used for fixed fire fighting on petro-chemical plants, loading docks, tank farms and other high risk hazards, have always been an essential part the Angus range of foam equipment. However, new technology and production techniques have given Angus a new range of designs providing much larger flows and more remote control options.

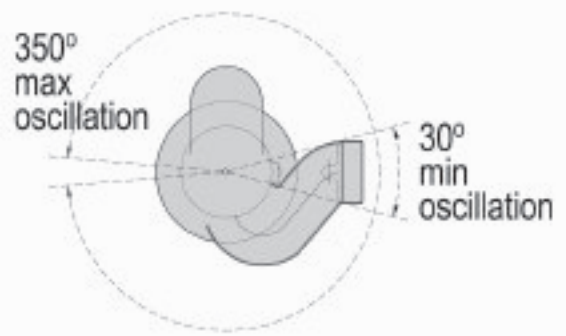
The new monitor range flow rates from 3,000 to 8,500 l/min in bronze and up to a massive 50,000 l/min in stainless steel. The Titan range includes 4 basic models in bronze and no less than 7 in stainless steel. All models come with a choice of 3 manual actuation modes; lever operated, gearbox with handwheel control or automatic oscillating. In addition models from 5,000 l/min upwards can be full remote controlled by hydraulic, electric or hydraulic/ electric motors. Add to this a range of 18 fog/jet nozzles, and 36 foam cannons and it is easy to see why the new



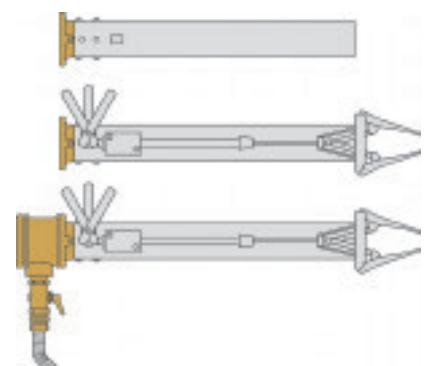
range justifies the name Titan.

All Angus Titan remote control monitors are normally rated EExd IIB T3 and can be used in areas where explosive atmospheres are present. A full range of remote control panels for safe areas or to EExd IIB T3 specification are available and all monitors have a manual override if there is a power loss.

A new software tool is also available to allow designers to predict the height and



distance of a jet of water or foam for any combination of monitor and nozzle or cannon. In addition the throw can be adjusted



Monitor material	Nominal flow in l/min at 7 bar inlet pressure
Bronze	3,000, 4,000, 5,000, 6,500, 8,500 l/min
Stainless steel	3,000, 4,500, 6,000, 8,000, 20,000, 30,000, 50,000 l/min

MONITORS BUYERS' GUIDE

for the angle of elevation, monitor inlet pressure and wind speed.

Self inducing foam fog/jet nozzles are available for flows up to 4,000 l/min and self inducing foam cannons are available up to 15,000 l/min.

Three self oscillating models are included in the range with the largest models giving a sweep angle of 350° using the unique Titan oscillating motor technology.

In addition to water and foam the new range is engineered to spray powders such as Monnex for the first time.

To complete the range all the Titan monitors up to 30,000 l/min can be trailer mounted to enable the equipment to be moved to an incident site quickly and easily.

All the Titan bronze monitors are manufactured from EN CC491 K equivalent to the old BS LG2.

Copper (Cu)	Zinc (Zn)	Lead (Pb)	Tin (Sn)
84.5%	5%	5%	5%

All Titan stainless steel monitors are fabricated from grade SS316 material.

With a history of supplying fire fighting monitors to industry and the major oil companies, both on and off shore, for over 40 years, Angus fire offer a range of reliable hand or remote control monitors for all static applications.

Iron (Fe)	Chromium (Cr)	Nickel (Ni)	Manganese (Mn)	Molybdenum (Mo)
66%	17%	12%	2%	2.5%

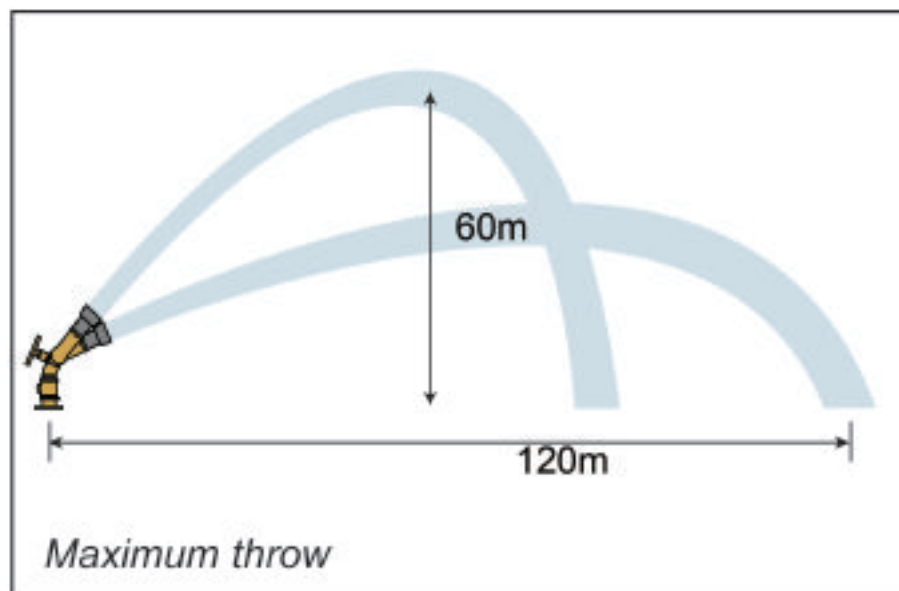
For more information, please contact:

Angus Fire

Thame Park Road, Thame, Oxfordshire OX9 3RT, United Kingdom

Tel: +44 (0)1844 265000 Fax: +44 (0)1844 265156 Email: general.enquiries@kiddeuk.co.uk

Website: www.angusfire.co.uk



AWG Turbo Fighter

The personal monitor for maximum efficiency

The new personal monitor from AWG is a portable device for mobile applications. It is designed to allow a jet and spray nozzle to be attached. Both the vertical and horizontal swivelling directions can be locked in any position.

The AWG Turbo Fighter supplied with an integrated ball valve for shutting off, is compact and light, both on the vehicle and in the hand. The feet which provide support during operations can be folded

up for transportation and the monitor also has a lockable transportation position for minimizing space requirements.

- Whenever to choose between a "branchpipe or a monitor" for operations, a new answer is now available: AWG Turbo Fighter, the personal monitor. It is simple to handle, can be carried easily by a single person and takes just moments to set up. The ideal device for mobile use.

Technical data

Inlet	2½" Male BSP thread
Outlet	2½" Male BSP thread
Delivery rate	max. 2000 l/min
Dimensions L x W x H, approx.	440 x 230 x 375 mm (transportation position with attached nozzle)
Swivelling angle, vertical	+20° to +60°
Swivelling angle, horizontal	+/- 40°
Weight without nozzle, approx.	7.5 kg
Ident-No.	31283434 (with MZ 2000 nozzle and Storz B inlet)



- With the new AWG Turbo Fighter you will be ready for operations faster than ever before. At the same time it requires minimal human resources for setting up and operation. For high extinguishing power adapted to the requirements of each situation. A jet and spray nozzle can also be attached with just a few hand movements.

For more information, please visit:
Website: www.awg-fittings.com

Spanning the Globe

ONE STOP SHOP - Pumps, Trucks, Equipment, CAFS, Water Purification Systems, Tactical Gear...



For over 100 years Darley has remained a family owned and operated business. Darley is easy to work with and has extensive worldwide experience. Dealer Inquiries Welcome. Trust us with your next order.

edarley.com



DARLEY • TRUSTED WORLDWIDE SINCE 1908

325 SPRING LAKE DR. • ITASCA, IL 60143 USA • 630-735-3500 • www.darley.com • www.edarley.com

Balder Portable Oscillating Monitor from Dafo Fomtec AB

Features

- Compact
- Light weight
- Usable with river and sea water
- Self cleaning filter protects oscillating valve
- Adjustable oscillating speed and elevation
- Automatic oscillation
- Runs with water or foam
- Works at low temperatures
- Low pressure drop

Application

- Fire Brigades
- Petrochemical Plants
- Tank Farms
- Loading Areas
- Chemical Plants

Recommended Foam

- Fluoroprotein 3% or 6%
- Protein 3% or 6%
- FFFP 3% or 6%
- AR-FFFP 3x6 or 3x3
- AFFF 1%, 3% or 6%
- AR-AFFF 3x6 or 3x3
- Multi Purpose Foam

Balder is a 2½" monitor for portable use. It is self oscillating and powered by water flowing through a special oscillating mechanism. Balder automatically sweeps from side to side. The speed of the sweeps and the elevation could be manually set and also be varied during operation. It is also possible to use the monitor without the oscillation and manually adjust the stream within 180° angle. Balder has a water inlet with a 2½" BSP thread.

For flows above 1,500 litres it is equipped with a double inlet. The pipes are cast in anodised aluminium. Parts which are vital for the correct functions, such as swivels are in stainless steel. Innovative piping technology minimises turbulence and frictional pressure losses. Balder is compact and weighs only 10.6 kg.

Technical data

Max. water flow (1 inlet/2 inlets): 1,500/2,500 lpm

Sweep range: Max. 25/min.

Oscillating angle: 60°

Elevation: +25° – +80°

Water inlet: 1 x 2½"/2 x 2½" BSP M thread

Water outlet: 2½" BSP M thread

Material: Anodised aluminium



Length: 440 mm

Height: 390 mm

Width: 330 mm

Weight: 10.6 kg

Part no.: 20-3100-00/
20-3100-01

For more information, please contact:

Dafo Fomtec AB

P.O. Box 683

SE-135 26 Tyresö

Sweden

Tel: +46 8 506 405 00

Fax: +46 8 506 405 29

Website: www.fomtec.com

Elkhart Brass Takes the Lead in Monitor Technology

Introducing the Configurable Sidewinder® EXM

ELKHART BRASS MANUFACTURING COMPANY, INC. presented the revolutionary Sidewinder EXM at this year's FDIC in Indianapolis, USA. The Sidewinder EXM is the first fully configurable and programmable monitor.

The Sidewinder EXM allows the Elkhart Brass customer to configure and program the right monitor for every need. Travel speeds, travel limits, and stow position are fully programmable. The monitor may be configured for hard-wired controls, wireless controls or both. All configurations and programming can be done on any Windows-based PC or laptop and then transferred to the Sidewinder EXM from a USB memory stick.

Besides being both configurable and programmable, the Sidewinder EXM also raises the bar in durability. The entire Sidewinder EXM is sealed to NEMA 6, which allows for full submersion of the monitor and components, including: the motors, sensors, harnesses and control enclosures. The Sidewinder EXM has larger motors; stronger, more efficient, planetary gear reducers; and upgraded swivel joints with true thrust bearings.

"By reviewing available technology and thinking about how it could be utilized for our customers, our design team was able to re-imagine how a small monitor might work," notes Hans Ashbaugh, President and CEO of Elkhart Brass. "We believe the new Elkhart Sidewinder EXM provides a single-stop, solution-oriented, customizable monitor for our customers."

For more information, please contact:

Elkhart Brass, Inc., P.O. Box 1127, Elkhart, IN 46515, USA

Tel: +1 574 295 8330 Fax: +1 574 293 9914 Email: dsjolin@elkhartbrass.com

Website: www.elkhartbrass.com



Advanced Skum™ Remote-control Firefighting Monitors

TYCO FIRE SUPPRESSION & BUILDING PRODUCTS is pleased to showcase its new generation of SKUM™ brand remotely controllable FJM-EL fog/jet firefighting monitors. They join a line-up of dependable and efficient foam fire protection solutions that is globally favoured throughout the marine and offshore industries and is chosen extensively for firefighting boats and multi-role pilot boats, tugs, workboats and merchant shipping.

The latest additions to the SKUM range are the three new FJM-EL monitors – the FJM-100 EL, the FJM-150 EL, and the FJM-200 EL – that offer exceptional flow performance, incorporate electric motor driven elevation and rotation and solenoid valve operated fog/jet pattern adjustment. However, it is the FJM-EL's remote control operation that really sets them apart as fix-mounted monitors designed for the safe delivery of foam or water, either as a solid jet or a fog pattern. This range of advanced monitors are designed to respond swiftly and effectively, so reducing the possibility of a fire developing into a major incident with the associated consequential losses and environmental damage. On the approval front, it has the DNV, Lloyd's, EN and other international approvals.

The FJM-100 EL, with the built-in inductor option, delivers up to 6,000 litres of water a minute to a maximum jet throw of 80 metres, while the FJM-150 EL increases this to 10,000 litres a minute to a distance just short of 90 metres. The top performing FJM-200 EL increases the reach to 120 metres and the flow to an impressive 20,000 litres a minute. The foam capacity for each of the models is 340 litres a minute, 585 litres a minute and 600 litres a minute respectively.

These lightweight and compact balanced-design monitors all incorporate an electrical junction box, low-friction bearings for easy manoeuvrability, and feature saltwater corrosion-resistant construction, which makes a major contribution to the monitors' reliability, while minimising the maintenance requirement. All include a



manual override option. Other optional components include a control and operating panel, which can be either the standard FJM model or be custom-built, suction hose and valve, and explosion protected EEx (e) and flameproof EEx (de) electrical equipment.

Further details on SKUM – the Swedish word for foam, pronounced “skoom” – solutions, and the new FJM-EL monitors can be found at www.skum.com. If you are in the Asia Pacific region, please send your enquiries to Sales-AP@tycofp.com. If you are in the EMEA region, please send your enquiries to Skum-info@tyco-bspd.com



Technical data at-a-glance

FJM Series – Standard			
Size	100	150	200
Water capacity	6,000 l/min	11,700 l/min	20,000 l/min
Design pressure	16 bar	16 bar	13 bar
Rotation	±165°	±165°	±165°
Elevation	–70°/+70°	–70°/+70°	–60°/+70°
Weight	52 kg/115 lbs	80 kg/176 lbs	125 kg/276 lbs

FJM-S Series – Built-in inductor			
Size	100	150	200
Water capacity	6,000 l/min	11,700 l/min	20,000 l/min
Foam capacity max.	320 l/min	600 l/min	600 l/min
Elevation	–45°/+70°	–45°/+70°	–45°/+70°
Suction connection	2" BSP male	2" BSP male	2" BSP male
Weight	55 kg/121 lbs	83 kg/182 lbs	128 kg/282 lbs



TFT's Blitzfire Proves an Extraordinarily Portable Monitor

TFT bolsters firefighting arsenal with portable Blitzfire powerhouse

More and more departments with limited staffing are turning to the "Big Gun, Big Water" solution when facing larger fires. Yesteryear's argument that "monitors are too bulky and hard to move" has been washed away by the introduction of TASK FORCE TIPS' patent pending Blitzfire portable monitor – a uniquely designed, simple, light, easily maneuverable monitor that shuts down automatically if it becomes unstable.

"The Blitzfire is unlike any monitor you've ever seen," said Rod Carringer, TFT VP of Marketing and Sales. "2000 l/min, a triangulated, gravity centered carbide-tipped base, and an ability to preconnect to the tailboard for immediate deployment. It's got initial attack written all over it."

Manually gating a stream is "newbie simple" with the Blitzfire's six detent flow positions and patented turbulence-free slide valve. If the situation requires, the monitor can be staked and set for unmanned firefighting. Sliding or lifting automatically closes down the unit's patented safety shut-off valve quickly – slowing near stroke end to avoid water hammer.

"We designed the safety shut-off to reduce the risk of injury," Carringer said. "But it ended up giving the Blitzfire an 'ability' to sense danger – so that it's always watching for trouble, manned or unmanned. If the automatic shut-off does trip, it can be reset immediately by reopening the valve to one of the six detent flow positions."

The vertically swiveling hose inlet pivot allows monitor stability on porches or stair landings, while the discharge makes directing the stream easy. Its low (10 degree above horizontal) attack is designed to "go in the front door" with high fire flow. Add the unit's 20 degree side-to-side (40 degrees total) and up to 50 degree elevation and it becomes clear why this is billed as "the monitor that goes anywhere a handline can go."

"There's also an optional (exclusive) oscillation unit that allows a 20°, 30°, or 40° sweeping motion," Carringer said of the feature that can be retrofitted to all existing Blitzfires. "Our newest market is biochemical incident management. If an (bio/chem) incident occurs, emergency management specialists quickly put up an emergency containment corridor, set and stake an oscillating Blitzfire, and bathe contaminated groups with low pressure, low impact streams."

The Blitzfire OSC's unique water turbine design drives the oscillating unit in a selectable



TFT's Blitzfire and Blitzfire OSC provide maximum flow with limited manning safely

20°, 30°, or 40° sweeping motion. The oscillating mechanism can be easily disengaged for manual operation. An anchor strap is included for safe operation on slick surfaces like marble floors. The main body is hardcoat-anodized aluminum with a TFT powder coat finish inside and out.

When cooling of processing or operating units is necessary, yet limited staffing will not allow the use of manned equipment, the Blitzfire OSC can provide up to 2000 l/min in an unmanned operation. For hazardous locations, the oscillating feature will allow continued cooling or firefighting operations while fire brigade

members remain safe. The Blitzfire OSC is the perfect appliance for high-flow, unattended operations or for an aggressive interior attack.

For more information, please contact:

Task Force Tips, Inc.
2800 East Evans Ave.
Valparaiso
IN 46383-6940
USA
Tel: +1 219 462 6161
Fax: +1 219 464 7155
Website: www.tft.com

Force™ Monitors by Unifire AB

Force™ Monitors by the Swedish manufacturer, UNIFIRE AB, are among the newest and most advanced remote-controlled monitors on the market.

The Force monitor system encompasses a variety of features designed to provide high performance firefighting capabilities and to allow state-of-the-art, dynamic interaction among monitors and other devices linked together on a Unifire network.

Force monitors

The monitor chassis is sleekly designed in polished stainless steel 316. The construction and integrated motor and gear design make the monitors lightweight and highly resistant to corrosion, chemical additives and even salt-water environments.

The Force50™ has a 50 mm (2") internal pipe diameter and a capacity





direction, the faster the monitor moves in that direction. The speed is intuitively changed in this way from almost invisibly slow to a maximum of up to 36°/sec. The joystick also has a nozzle pattern control dial, a park button, and a valve control button built in. And, it features an impressive, simple-to-use record/playback feature that is set and played with a single button. It records everything the monitor does during recording, and then plays it back continuously until interrupted by the operator.

Unifire Control Systems – the UCS & MCU

Perhaps the most impressive feature of the Force monitor system is its electronics. Unifire's Master Control Unit (MCU) and Unifire Control System™ (UCS™) are sophisticated electronics that can operate on a variety of protocols, including their native CAN-bus protocol. They enable the monitors to be networked and interact dynamically with a large array of devices ranging from lights, valves and cameras, to entire booms, aerial platforms, and more.

And, because the Unifire MCU knows precisely where the monitor is positioned at any moment, and because the MCU can take the monitor to any given set of coordinates, the system can work with infrared cameras, flame detectors and CCTV technologies to create fully automatic firefighting systems.

For more information, please contact:

Unifire AB
Bultgatan 40B
SE-442 40 Kungälv, Sweden
Tel: +46 303 24 84 03
Fax: +46 303 24 84 09
Email: sales@unifire.com
Website: www.unifire.com

of 400-2000 lpm (100-530 gpm). The maximum reach at 10 bars (145 psi) is 65 meters (213'). It is compact at 51 x 35 x 22 cm (20" x 14" x 9"), and weighs only 18 kg (40 lbs.) with the Integ50 nozzle.

The Force80™ has an 80 mm (3.2") internal pipe diameter and a capacity of 2000-5000 lpm (530-1320 gpm). The maximum reach at 10 bars (145 psi) is 85 meters (278'). It is 80 x 50 x 33 cm (32" x 20" x 13") and weighs only 30 kg (66 lbs.) with the Integ80 nozzle.

Both sizes provide complete, spherical coverage with a range of motion of 360° horizontally and 180° vertically. End-position bolts can be placed every 15°, and self-setting soft-stops prevent the monitor from hitting the end-bolts, preventing wear and tear.

The monitors have waterproof multi-connectors on all motor connection points, so cables and parts can be quickly and easily installed, repaired or changed.

Both monitors come standard with Unifire Integ™ electric, high-performance nozzles. The nozzles have an integrated worm gear drive and precise spray pattern

adjustment control from the joystick. The operator can control the pattern from a tight jet stream, to wide-angle (120°) full fog cone, and everything in between. A number of nozzle options are available and the monitors can accommodate and control nozzles from many other manufacturers.

Unifire joystick

Unifire's lightweight joystick gives the operator precise, intuitive control of the monitor in any direction, including diagonally, in a progressive manner. The harder you press the joystick shaft in any

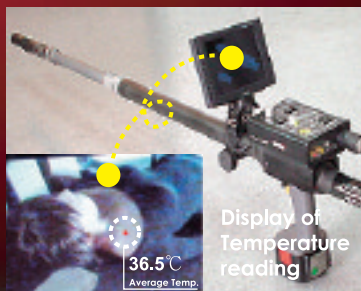
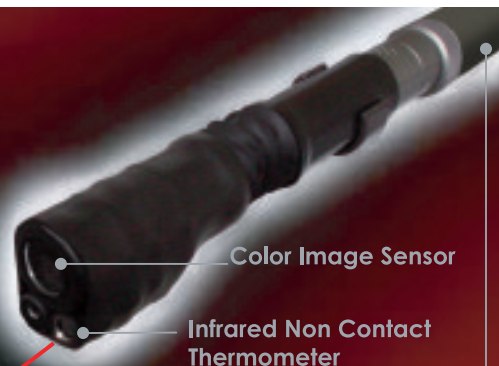




ISO9001

PROEYE 951-SX PAT.P

Audio + Video + Thermal Life Detector

Display of
Temperature
reading

Color Image Sensor

Infrared Non Contact
Thermometer

Audio Sensor Unit

PROEYE 951-SX is designed with the input from rescue personnel. This model has a unique feature which enable the operator to check the survivor's body temperature and if the survivor is alive by using the Non Contact Infrared Thermometer installed in the small Camera Head.

- 180° CameraHead Articulation
- Integrated 2.5m Probe with Pistol Grip Control
- CameraHead can be separated from the Control Unit.
- Water Proof Camera Head design
- Two way audio communication

YONE Corporation

Head Office:
23 Nishinakaai-cho
Nishinokyo, Nakagyoku,
Kyoto City, Japan
Tel : +81 75 821 1185
Fax : +81 75 801 2263
WWW.yone-co.co.jp

The International

FIRE & EMERGENCY TRAINING LEADER



TRAIN • SERVE • RESPOND

TEEX trains emergency response personnel from more than 45 countries each year. Each course can be tailored to meet your exact needs in a variety of areas.

- Municipal / Industrial Firefighting
- Emergency Medical Service
- Hazardous Materials Response
- Search & Rescue / USAR
- Aircraft Rescue & Firefighting
- Fire & EMS Leadership
- Fire Officer / Instructor
- Marine - Shipboard Firefighting
- Oil Spill Response
- Weapons of Mass Destruction
- Emergency Management / NIMS
- Incident Command
- LNG Emergency Response
- Assessment / Technical Assistance

Schedule these or any of our 130+ courses today.
www.teex.org/fire • 1.866.878.8900



TEXAS ENGINEERING EXTENSION SERVICE

A Member of The Texas A&M University System
301 Denner • College Station, TX 77843-7080



A firefighter at the scene of a collapsed building in downtown Clinton, Mo., where several people were rescued in June last year



Staying Safe at Structural Collapse Operations

By Michael Lee

Structural collapse operations are a high risk/low frequency event that can kill firefighters when not practiced properly. The ability to deliver collapse operations can be broken down into five phases: arrival, surface rescue ops, interior rescue ops, selected debris removal and general debris removal.

Arrival phase

In the arrival phase, units are dispatched to a structure after a partial or complete structural collapse has occurred. Initial units should complete an immediate size-up and establish command. A command post should be established from the onset as this can be a prolonged event. Arriving apparatus should be staged away from a possible secondary collapse zone and considerations for blocking off surrounding traffic should be considered to reduce vibrations and interference with incoming resources. Command should con-

sider instituting Level 2 staging procedures immediately, while the management of emergency and civilian traffic is critical.

You should assess for and order resources early. If it is later determined that the additional resources are not needed, command can return these units to service. In addition, assess the need for outside heavy equipment early and request mobile cranes, front-end loaders, etc., with large capacities. In addition, consider early activation of local USAR resources if required.

Command should do an immediate hazard

assessment – and then confirm it by appointing a Safety Officer to perform another size-up. Among the hazards associated with structural collapse are the potential for secondary collapse, explosion with fire due to broken gas and electrical lines, falling debris and a toxic atmosphere.

These hazards mean that safety and utility groups should secure hazards as soon as possible, including shutting off gas, electricity and water. If it is not possible to secure all hazards, Command should notify all rescue personnel operating on scene of the hazards present. Unless strong control of the incident is gained quickly, things can easily escalate out-of-control.

Surface rescue operations

Initial on-scene units should be directed in rescuing victims that can be seen on the surface and it's vital that rescuers are aware of all the physical hazards present at the scene of a structural collapse.

While the initial rescue of surface victims is going on, Command should establish a perimeter around the whole site and keep all incoming civilian personnel out of the immediate area. Those civilians already operating on site – and believe me, they will be there – prior to your units arriving should be assessed for effectiveness. If they can be used safely, try and outfit them with safety gear – helmets, gloves and goggles. If it appears they are ineffective or too emotional, remove them from the area for the safety of everyone.

Among the hazards associated with structural collapse are the potential for secondary collapse, explosion with fire due to broken gas and electrical lines, falling debris and a toxic atmosphere.

After initial surface victim removal has been completed, Command should ensure that all personnel are removed from the collapse site. This will allow for the removal of all civilians and the regrouping of rescue personnel so that a specific action plan can be instituted for the search and rescue of remaining trapped victims.

It's at this time that Command should order a situation report from area officers. Members previously operating in the collapse structure should be quickly debriefed as to building lay out and possible location of victims. After all personnel have been removed from the collapse site, Command should establish structure triage teams. These may include structural engineers and/or personnel that are specifically trained in the recognition of structural collapse.

Before these teams begin triage activity, Command should notify them as to the specific action plan and building marking system (FEMA marking system). If there is a possibility of hazardous materials involvement, Command should assign a Haz Mat Technician to each building triage team.

During the initial stages of a campaign operation, Command should attempt to ensure that there will be roadways into and out of the collapse site. This may include establishing liaison with the police department and having it reroute all traffic well around the collapse site. Also, victim staging areas should be established by creating a Medical Group or Branch based on the anticipated number of resources anticipated for establishment of triage, treatment and transportation needs. An area should be established away from the hazards of the collapse to account for, treat and transport victims.

Interior rescue operations phase

First, only those personnel qualified to perform structural collapse stabilization and void access with shoring should be assigned to interior search/rescue teams. A specific action plan should be made for the search and rescue of the remaining victims, with this plan being distributed to all

PARAT® X-treme safe | X-treme bright | X-treme versatile |

- ATEX Gas Zone 1 & Dust certified
- RFI, EMI, ESD shielded
- Interchangeable Xenon & LED assemblies
- Aerospace technology
- Advanced SMD electronics
- Waterproof
- Accessories: Fibre optics, traffic wand & helmet mount

X-treme Ex

IP68

ATEX ZONE 1

IIB T4

IIC T4

ibD IP68

IP68

ATEX ZONE 1

IIB T4

Contact : **PERMALIGHT (ASIA) CO. LTD.**
 4/F, Waga Commercial Centre, 99 Wellington Street, Central, Hong Kong.
 Tel.: 852-2815 0616 Fax 852-2542 3269
 Email: pila@biznetvigator.com Website: www.pilatorch.com

Made by Pila® exclusively for PARAT® - Schönenbach GMBH + Co. KG, Germany

rescue personnel operating at the collapse site.

Prior to beginning search and rescue operations, Command should create specific search teams. These may include personnel with technical search equipment (i.e. acoustic, fiber optic, video, etc.), dog teams or personnel using the hailing (call-out) method of searching for victims.

After the building triage teams have completed evaluations of buildings, the search teams can then enter them. These teams should use standard building marking system (FEMA marking system) after the structure has been searched. If building triage teams determine that the building is structurally unstable, the search and rescue team should not enter until appropriate shoring and stabilization has been accomplished.

In a building that has been determined to be unsafe by the building triage teams, rescue teams should not attempt rescues. These teams should follow search teams that have searched previously triaged buildings and should consist of at least two trained team members. They should also have access to at least one HazMat Tech with air monitoring equipment. If at all possible, rescue teams should attempt to gain access vertically; the horizontal breaching of walls should be done only if there is no other means to reach the void space that victims may be trapped in. Horizontal breaching of a load-bearing wall may precipitate a secondary collapse of the structure but the potential for secondary collapse can be reduced if the rescue team breaches structural members from above or below. Prior to breaching a structural load-bearing member, a specially trained structural collapse specialist should approve and oversee this operation. If the atmospheric conditions are not known in the room of desired entry, a pilot hole should be punched to monitor to it prior to the beginning of breaching operations.

If at all possible, rescue teams should attempt to gain access vertically; the horizontal breaching of walls should be done only if there is no other means to reach the void space that victims may be trapped in.

If a victim is located, the rescue team should treat the area that they've been found in as a confined space and follow confined space rescue operations guidelines. The rescue team leader should designate the proper method of entry into the space and ensure the safety of the entry rescuer. All spaces must be monitored for flammable, toxic and oxygen deficient atmospheres before entry is made.

Once the rescue team has made contact with the victim(s), an immediate assessment of the victim(s) needs to be carried out. One thing to remember is the effects that lifting objects off the victim can have on them (Compartment Syndrome). The safest and most effective method of victim extrication needs to be determined, with the rescue team leader ensuring the safety of the extrication

GB SOLO LIMITED

Fire fighting helmets and thermal imaging cameras

S2 SEARCH & RESCUE

The S2 search & rescue is water resistant and vibration proof. It gives clear man detection of up to 1Km & vessel identity over several km's.

- Weighing only 750g.
- As an all round camera with the capability to monitor for 'man overboard'.
- Give vessel security and identify objects over long ranges is second to none.



S2 FIRE

The lightest and smallest thermal imaging camera in the World.

- Weighing only 750g
- Suitable for use with all known breathing apparatus and gas masks.
- On Screen Temperature Display, both graphic and digital.
- On Screen Temperature Warnings.



SOLOTIC

The ultimate all-in-1 helmet system offering protection, communication and vision

With the SOLOtic you can identify objects through even the densest smoke by means of a fully integrated thermal imaging camera, which displays the image inside the face mask with the use of augmented reality viewing optics.



SOLOUNIFIT

Total head protection with integrated respiratory and communication systems

The SOLOunifit is easily donned and can be adapted for all makes of breathing apparatus and radio systems. The SOLOunifit has also become the favourite head protection for the majority of the world's cruise ships, Navies and F1 refueling crews.



don't go it alone go with solo

For full details or to arrange a demonstration contact -
GB Solo Ltd. Tel: +44 (0)1609 881855
email: sales@gbsolo.co.uk • www.gbsolo.co.uk

SCDF DART personnel evacuating a casualty during Ops Lionheart Sichuan, China. Picture courtesy of SCDF.



process. Once the victim(s) have been removed to a safe location, they should be transferred to the Treatment Sector for continued ALS care.

After all located victims have been removed from the building, the rescue teams should pull out of the building and update the marking system. Rescue teams should keep in mind that any cribbing and shoring should be left in place as the removal of these systems could precipitate a secondary collapse.

Selected debris removal phase

If rescue teams have not been able to find victims through other methods, then they should try to be located by removing debris. If there is a potential for live victims, teams must be very careful when removing debris so as not to cause a secondary collapse or further injury to the victim(s).

If a victim location is known, either from family members or previously rescued people, an attempt should be made to remove debris to reach that person. In lightweight frame construction buildings, this can be accomplished by cutting and hand-removing structural members. This may also require the use of a crane to pick and move the structural components to reach potential victims. Rescue team members should assist in the break-up and removal of structural components.

During all of these operations, a safety officer should be overseeing things to ensure site safety for all operating personnel. If structural components are removed from the site, they should be marked in some way so they can be identified – which building they came from, etc., – for future investigative/forensic purposes.

As debris is removed, all operations should be

stopped periodically to search (acoustic, dog team, hailing) for victims. After enough debris has been removed to reasonably ascertain that there are not any victims, search and rescue operations can then be suspended in that building.

General debris removal phase

Prior to beginning general debris removal, Command should call for a situation report to establish victim survivability – remember life is lived by the rule of 3's; 3 minutes without air, 3 days without water and 3 weeks without food. If it has been determined that no victims can be found alive in the building, a general debris removal can begin. Should there be a potential for deceased victims to be trapped in the rubble, removal crews should be alert for signs of them.

During general debris removal, if heavy equipment operators spot a sign of a deceased victim(s), a selected debris removal can be conducted in order to remove them respectfully. The coroner and/or other investigative personnel should then be notified to authorize the removal of the body(ies). As debris is removed, each dump truck load should also be marked as to the general area found and final location of the debris, which will help investigators complete their forensic analysis.

Prior to termination of the incident, Command need to account for all personnel that have been operating at the collapse site. Each sector officer should ensure crew and equipment accountability before returning to service. And if Command has not previously addressed the issue of C.I.S.D., he/she may consider doing so during the termination phase. After the personnel and equipment are back in service, debriefing can be carried out. **APF**

Michael Lee has 25 years experience in pre-hospital paramedic experience and about 20 years experience in the fire service. He started as a FF/Paramedic and worked up through the ranks, including training officer, to his current position as battalion chief at Cunningham Fire Dept in Colorado. He is currently filling the role of safety officer for FEMA USAR Colorado Task Force One and has military service in the U.S. Navy. To contact Michael, email Michael.Lee@FireRescue1.com

Reprinted with permission from www.firerescue1.com. All rights reserved. Copyright 2009.

Rescue starts here

NEW Generation !

Visio Stab
Controller
Detects structural movement
to alert urban search
and rescue teams

Visio Search
Audio communication and
monitoring screen

Audio ResQ
Detection and Localisation
of casualties

Up to
6 sismics sensors

Call for free demonstration !

SEARCH & RESCUE EQUIPMENT NEW DIGITAL TECHNOLOGY

Certified
ISO 9001

www.groupe-leader.com

Tel +33 (0)2 35 53 05 75 - Fax +33 (0)2 35 53 16 32

LEADER
Tomorrow's technology today

Outstanding cutting force

1102 kN

performance Line

LANCIER
Hydraulik

GmbH & Co. KG

www.lancier-hydraulik.de

For more
than 35 Years



Rescue Tools
„Made in Germany”

available
with Mono Coupling

Rescue Tools

Power Units

Rescue Platform

Stabilisation

Lifting Bags

Floodlight

LANCIER Hydraulik GmbH & Co. KG • von-Siemens-Str. 1 • 48346 Ostbevern, Germany • Phone ++49 (25 32) 95 70 80 • www.lancier-hydraulik.de

Developed by Professionals For the Professionals



Dräger FPS 7000
Dräger PSS 7000

A product developed for extreme conditions

The Dräger PSS 7000 is the result of Dräger's ongoing commitment to providing professional fire fighters with a world class state-of-the-art breathing apparatus.

Key new features of the PSS 7000 is the harness that uses advanced materials and moulding methods to produce exceptional wear resistance and a high grip anti-slip surface to ensure that the harness remains secure on the body.

With easier seamless integration and interface with the facemask, communication equipment, head protection and good ergonomic design to create a higher performance personal safety system, the Dräger PSS 7000 is a major leap forward in the evolution of breathing apparatus for the professional fire fighter.

Workplace gas measurement technology must be durable, robust and reliable

By Justin Kung

Draeger Safety Asia
Pte Ltd

Working with toxic gases is common in many industries – as are the accompanying dangers. To make sure that personnel are warned in good time about potentially harmful concentrations of gas in the workplace, portable gas detection instruments form part of the standard equipment for employees throughout industry, mining and firefighting. The demands placed on these small warning devices are multifaceted. They have to display substances reliably, quickly and precisely and, at the same time, they must be robust, low-maintenance and low in price. What this means for the wide variety of applications in different industries can be seen in the following examples.

Gas analysis in different applications

The demands placed on detectors vary in accordance with the type of application. Mining, for example, is often characterized by inhospitable conditions. Gas measurement devices have to work reliably even when they are exposed to dust or water splashes. Devices certified in accordance with protection class IP 65 offer this level of robustness. Moving around in mine shafts can be frequently combined with drastic and sudden changes in ambient pressure. The resultant pressure surges can cause electrolyte leakage, destroying electrochemical sensors and, because the entire device has to be replaced, can prove to be expensive. In this situation the patented electrochemical Dräger XXS Sensors offer an ideal solution. Resistant to electrolyte leakage, they can be used within a range of 700 to 1300 mbar and feature internal compensation to cope with a sudden drop or build-up of pressure.

In shipping, refineries and other areas of industry, the oxygen or hydrogen sulphide content of the ambient air may need to be measured. High stability and precise measurements are especially important as false alarms, caused by inaccurate detection of O₂ concentrations, can result in costly operational downtimes. In the worst case, such

repeated downtimes may even lead to users switching off their devices. This would obviously mean that they would not receive any warning in the case of an actual emergency.

Firefighters often need to check the concentration of carbon monoxide in ambient air during firefighting applications. They also use gas measurement devices to analyze the breathing gas of anyone who may be injured. For this, they need a gas detector that can provide a reliable and precise display of the measured values.

Ensuring reliability and precision: the sensors

The most important parameter when considering the quality of a measurement device and, therefore, its efficiency in operation, is the sensor. The sensor determines the precision and responsiveness of the device as well as its reliability, and keeps false alarms to a minimum whilst ensuring that accurate alarms are given as soon as an emergency arises. The life of a sensor also influences the service life of the device and, therefore, has a bearing on the long-term cost of gas measurement technology. Dräger XXS sensors for use with oxygen, carbon monoxide and hydrogen sulphide are designed to provide fast detection and have an

The sensor determines the precision and responsiveness of the device as well as its reliability, and keeps false alarms to a minimum whilst ensuring that accurate alarms are given as soon as an emergency arises.



expected service life of more than five years. The oxygen sensor has a guaranteed service life of five years. With a low power consumption and manufactured lead-free, it also features patented three-electrode technology which protects the sensor from wear.

Maintaining safety: the function test

In order to check that previously used devices are still providing reliable detection, function tests must be carried out before every operation. Such tests are crucial as only those devices that have been properly verified can guarantee an accurate alarm in an emergency. Where large numbers of equipment are held in stock, this can pose quite a logistics challenge. To avoid delays and minimize interruption to the workflow, local checks are recommended at each workplace. The faster and easier the tests are, the greater the likelihood that they that will actually be carried out. The responsibility for correct device testing remains with the employer.

Requiring no mains power, the Dräger Bump Test Station can be used anywhere and carries out a function test, optionally, in five to fifteen

seconds. The test results are recorded in the device and can also be printed on a mobile printer.

Adjustable bump test and calibration intervals can be preset by the user in accordance with specific maintenance requirements.

On request, the detectors can also be configured to switch off automatically if the user has failed to carry out the function test after a pre-determined interval, or in case of (non-)compliance with regular workshop maintenance and calibration intervals.

Driving costs down: durability pays off

Today, most single-gas instruments are single-use products. When the sensor ceases to function – which is normally after around two years – a new detector has to be purchased.

The new Dräger Pac 5500 and Dräger Pac 7000 5Y instruments can be used for several years, lowering the cost of ownership both in the mid and long term because of the sensor's long service life and the fact the sensor can also be replaced. In addition, because the devices do not have to be replaced by new models on a regular basis, there are no user training costs for new detectors. Dräger manufactures both the sensors and the devices and offers a comprehensive service program with training, maintenance, logistics

and repair services. For example, this can include regular calibration to suit the exact needs of specific applications. Workshops and helplines support the user with device repairs or, if requested, DrägerService will carry out the repair, ensuring that users remain fully operational in case of emergencies.

Keeping an eye on quality and service: making the right choice

Several factors need to be considered when selecting the most appropriate gas measurement technology. The durability and quality of both the sensor and the device not only ensure safe working but, at the same time, minimise false alarms. Also, in terms of cost the use of devices like these can be favourable thanks to their long service life. Another important factor includes the service provided by the supplier: in case of doubt they should be able to ensure a constant supply of operational instruments. Last but not least, the design and control of the function tests determine the "user-friendliness" of the detectors – influencing user acceptance and affecting the decision as to whether or not the devices will be used. **APF**

Dräger. Technology for Life®

The Drägerwerk AG & Co. KGaA is an international leader in the fields of medical and safety technology. Dräger products protect, support and save lives. Founded in 1889, in 2008 Dräger generated revenues of around EUR 1.9 billion. The Dräger Group is currently present in more than 190 countries and has about 11,000 employees worldwide. Please visit www.draeger.com

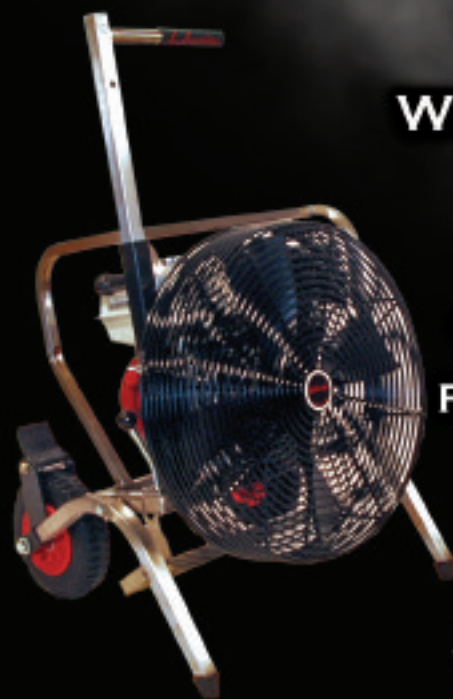
UNIFIRE

MANUFACTURERS OF HIGH PERFORMANCE EQUIPMENT



WHEN TIME MATTERS.
WHEN LIVES ARE AT STAKE.
WHEN SAFETY IS KEY.

CHOOSE THE BRAND
THE TOP TRAINING AND
RESCUE TEAMS CHOOSE.



UNIVENT BRAND SAWS ARE A DIVISION OF UNIFIRE

1-800-745-3282 • WWW.UNIFIREUSA.COM



SARATOGA®

Protecting the Protectors

FIRST CHOICE FOR FIRST RESPONDERS

The most sophisticated military, law enforcement, civil defence and counter terrorism units around the world trust only one CBRN protective system

The others just keep their fingers crossed and hope that nothing ever happens

Blücher GmbH	Bluecher UK Ltd
phone +49 211 9244 0	+44 1507 451 443 phone
fax +49 211 9244 211	+44 1507 451 0940 fax
info@bluecher.com	info@bluecher.com
www.bluecher.com	www.bluecher.com

Rescue equipment

CORE™ Technology
Quicker, safer, easier

one hose, one coupler

max. 720 bar
max. 25 bar

increased safety

Our CORE™ system offers many advantages, including:

- Increased safety - high-pressure line inside & protected by low-pressure line
- Tool change under flow
- Para-aramid reinforced hoses - no kinking, no pinholes
- Flat face auto-lock couplers - no dirt inside - couple & lock with just one push

www.holmatro.com


holmatro
mastering power

To show the different styles of Type 3 Liquid Tight garments

From left:

The Trellech Splash 900 worn with a breathing system outside the suit

The Trellech Splash 1000 two piece suit worn with a breathing system inside the suit

The Trellech Splash 2000 one piece suit worn with a breathing system inside the suit



Rewriting the Standard

By Jeff Heaton

Sales & Marketing
Director, Trelleborg
Protective Products

A new standard came into operation throughout Europe regarding chemical protective clothing in 2005 and almost appears to have gone unnoticed.

This standard goes by the title EN 14 605:2005 Protective clothing against liquid chemicals; performance requirements for clothing with liquid-tight (type 3) or spray-tight (type 4) connections, including items providing protection to parts of the body only (types PB [3] and PB [4]) and it replaces three 10 year old standards EN 465:1995, EN 466-1:1995 and EN 467:1995. In many cases EN 14 605 cross references to other EN standards so that test methods can be relied upon to be the same wherever they are performed and a meaningful comparison can be made between garments particularly if the levels of performance are considered not just the overall standard. In particular EN14325 is used which lists all the tests to be performed on garment materials used in chemical protective clothing.

The first requirement of EN 14 605 is that products must comply with EN 340:2003. This is the standard covering the general requirements for protective clothing and includes areas such as the innocuousness of the material, performance after ageing, sizing and labelling and other general matters that apply to all protective garments.

One of the biggest differences of EN14 605 to the previous standards, however, is that practical performance tests have been added along with levels of performance. Class 1 is the lowest level, and minimum which must be achieved for certification, and class 6 is the highest

The tests, and their reference standards, which must be performed on the product material are given on the next page.

Requirement	EN Reference Standard	
Abrasion resistance	EN 530	
Flex cracking	EN ISO 7854	
Trapezoidal tear resistance	EN ISO 9073-4	
Tensile strength	EN ISO 13934-1	This is a new requirement which replaces burst resistance
Puncture resistance	EN 863	
Resistance to permeation	EN 374-3	This now requires testing on the seams
Resistance to ignition	EN 13274-4	This was originally a new requirement to replace stability to heat but has since been removed

It is important to clarify that the above tests are on the material alone and separate tests are required on the seams, joins and finished assemblies:

Requirement	EN Reference Standard
Resistance to penetration by liquids	EN 463 for type 3 (liquid tight) products EN 468 for Type 4 (spray tight) products
Resistance to permeation of liquids	EN 14325
Seam strength	EN 14325 (test method as EN ISO 13935-2)



The Trellech Splash 600, a Type 4 Splash protective suit. Right, with fitted boots

At this point it may be worth clarifying the difference, in EN 14605, between what appear to be two very similar requirements in resistance to PENETRATION and resistance to PERMEATION.

Penetration is a measurement of how much of a chemical gets through the garment to the person underneath. For EN 14 605 it is tested in two ways depending on the type of garment. For Type 3, liquid type garments it is tested by directing a jet of water containing a marker dye at the product at a pressure of 150 Kpa from a distance of 1 metre selecting test spots from the most critical areas. The test for Type 4 products is very similar except the water is sprayed from all sides from fixed spray nozzles whilst the garment rotates. In



BOOTMAKERS TO THE WORLD

BLACK DIAMOND IS THIRD GENERATION BOOTMAKERS. WE ARE FOCUSED AND PASSIONATE ABOUT MAKING GREAT BOOTS AND PROUD TO BE WORN BY LEADING FIRE DEPARTMENTS AROUND THE WORLD.

THE INDUSTRY'S ONLY NO LINER PULL-OUT

Stock No. 277-0911

Comfort System

Comfort Fit Plus - with Enersole

Boot Height

14 inches

Leather Upper

Black Diamond's Exclusive FireTuff™ Leather

Lining

CROSSTECH® Fabric with Omaha lining is a high performance, wicking fabric, originally developed for aggressive military applications

Lining Construction

"Stroble" boot lining construction for maximum fit

3-Point Heel Lock System

Exclusive 3-Point Heel Lock for Fit & Comfort

Kevlar Lining

Kevlar® lined for maximum protection



Pull-On System
Integrated & reinforced loop pull-on system

Fusion™ Upper

A powerful alloy of solution dye Nomex®/Kevlar® and Teflon® EPPE. Combines the durability of Nomex, the strength and abrasion resistance of Kevlar and water resistance of a patented Teflon EPPE.

Shin-guard Protector

Comfort form-fitting shin-guard provides maximum protection

Steel Toe

Hi 500, Meets or Exceeds ASTM Standards

Steel Midsole

Stainless Steel

Steel Shank

Double Ridged Steel

Toe Cap Protection

Rubber Toe Cap for high-abrasion



Footbed

3 Density Removable PU Orthotic Footbed. Fabric-covered with TPU heel cradle for overtime comfort

Outsole

Proprietary Rubber Comfort Cup Sole with Comfort Flex, High-Abrasion and Traction Performance



CROSSTECH®
PRODUCTS

FUSION™



Certification

NFPA 1971-2007 Edition Standard for Structural Firefighting

BOOTS THAT FIT YOUR WALLET AND YOUR FEET.

CONTACT BLACK DIAMOND: EMAIL ALUNDER@BDFIRE.COM OR VISIT WWW.BDFIRE.COM

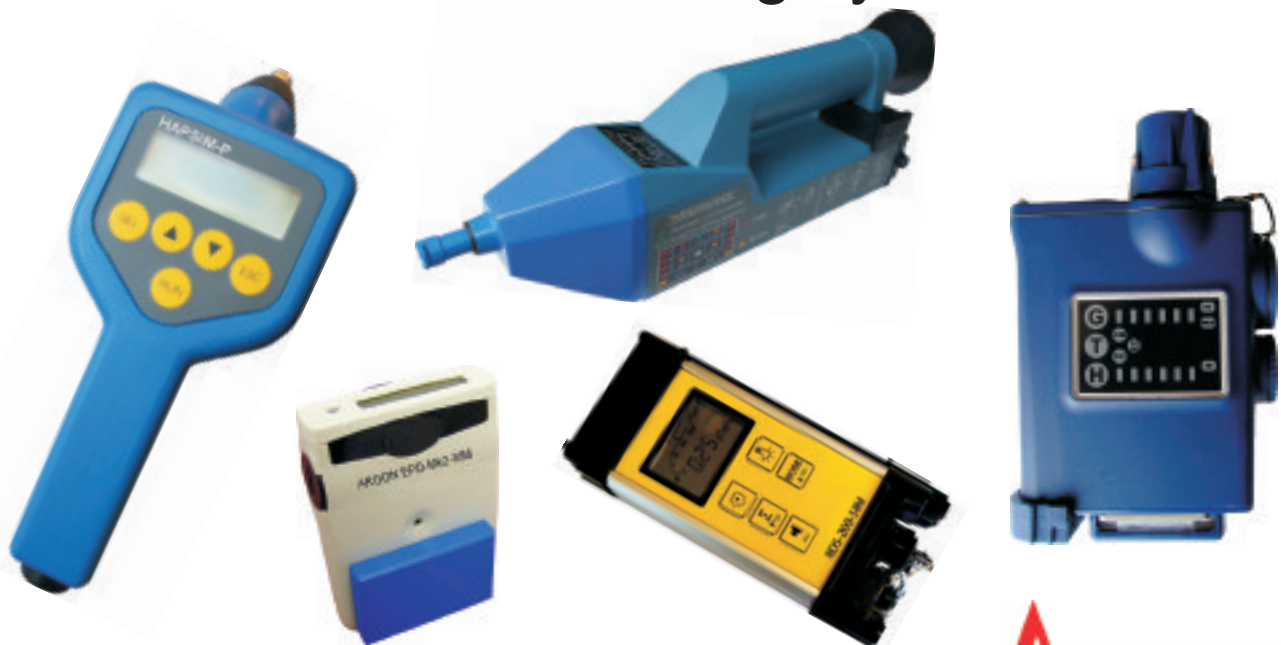
PERFORMANCE LEVELS UNDER EN 14 605:2005

Requirement	EN Reference Standard	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Abrasion resistance	EN 530	>10 cycles	>100 cycles	>500 cycles	>1000 cycles	>1500 cycles	>2000 cycles
Flex cracking	EN ISO 7854	>1000 cycles	>2500 cycles	>5000 cycles	>15000 cycles	>40000 cycles	>100000 cycles
Trapezoidal tear resistance	EN ISO 9073-4	>10 N	>20 N	>40 N	>60 N	>100 N	>150 N
Tensile strength	EN ISO 13934-1	>30 N	>60 N	>100 N	>250 N	>500 N	>1000 N
Puncture resistance	EN 863	>5 N	>10 N	>50 N	>100 N	>150 N	>250 N
Resistance to permeation	EN 374-3 or EN ISO 6529	≥10 mins	≥30 mins	≥60 mins	≥120 mins	≥240 mins	≥480 mins
Resistance to ignition	EN 13274-4	Requirement removed according to amendment A1.					
Resistance to penetration by liquids	EN ISO 17491-3 for type 3 (liquid tight) products	Pass/fail test (no classes).					
Resistance to penetration by liquids	EN ISO 17491-4 for Type 4 (spray tight) products	Pass/fail test (no classes).					
Resistance to permeation of liquids	EN 14325	>10 mins	>30 mins	>60 mins	>120 mins	>240 mins	>480 mins
Seam strength	EN 14325	>30 N	>50 N	>75 N	>125 N	>300 N	>500 N

EXTRA TESTS

Resistance to flame	EN 14 325 EN 13 274-4 method 3	Specimen passes through flame	Specimen stops 1s in flame	Specimen stops 5s in flame	–	–	–
Limited flame spread	EN 14 116	Index 1	Index 2	Index 3	–	–	–
Antistatic shielding	EN 1149-3	EN 1149-5 electrostatic dissipative material: S>0.2 or t50 <4 s tested to EN 1149-3.					

chemical and radiation detector simulation training systems



Argon Electronics LLP
 Tel: +44 (0)1582 491616
 Fax: +44 (0)1582 492780
 E-mail: sales@argonelectronics.com

For further information and a free copy of our CBRN Training Equipment Guide contact us at www.argonelectronics.com

ARGON
 ELECTRONICS
 HAZMAT & CBRN SIMULATION

both cases, prior to the test, a series of exercises are performed in the garment, including climbing a ladder and crawling on the floor, to ensure the integrity of the whole garment.

Permeation is how a chemical passes through a material at the molecular level. Testing is done by placing a sample of the material across a sealed box and the chemical at one side. Measurements are then taken at the other side to detect how soon the chemical breaks through. This is the BREAKTHROUGH TIME and the amount of permeating chemical per unit of time is the PERMEATION RATE. Under EN 374-3 a permeation rate of 1.0 $\mu\text{g}/\text{cm}^2/\text{min}$ is the norm so a Level 6 product would allow less than one millionth of a gram per square centimetre of fabric per minute to permeate in 480 minutes. Interestingly the US standard for permeation, ASTM F739, uses a norm of 0.1 $\mu\text{g}/\text{cm}^2/\text{min}$ and so is 10 times more stringent.

Performance levels under EN 14 605:2005

At Trelleborg Protective Products we found that, in practical terms, these new standards affected the design of the suits they apply to.

For Type 4 splash tight suits a chin flap on the hood helps to prevent spray getting inside the suit around this area.

Sleeves required a tighter fitting cuff than the previous elasticated system and so a Velcro closure has been adopted to prevent ingress of liquid between the cuff of the garment and the gloves. To assist in this Trelleborg is making all its Splash suits available with the same glove ring system used on its gas tight suits.

For the legs a double layer system has been introduced so that the fabric goes inside and outside the boots to prevent spray getting inside the suit in this area. Again options have been made available with fitted boots or integral socks.

As part of the redesign of the range other options, although not required to meet the standard, have also been made possible such as watertight zippers, Velcro or popper fastening on the zip flap, different glove combinations and different materials and colours to suit different applications.

To meet the highest requirements of Level 6 Type 3 suits required the use of watertight zippers, changes to the zipper flap closing and a redesign of the valve pockets. Again during this redesign phase it was possible to make options available such as the bayonet glove system, Boot, sock or double leg versions, glove options, different fabrics and colours and, for the non encapsulated version a fitted face mask for use with different types of breathing system.

In addition to the above other standards have been incorporated to meet the demands of customers particularly in industrial environments. By reformulating the materials it has also been possible to provide Resistance to flame (EN 14 325/EN 13 274-4 method 3), Limited flame spread (EN 14 116) and Antistatic shielding (EN 1149-3) to provide added safety features.

As a result of the update in EN 14 605 it is now possible to not only rely on the standard to provide you with a performance level to which a garment should perform but also, by selecting garments with the highest levels of protection which may be required for any job, to ensure that protection is adequate for all scenarios. **APF**



Complete Protection

Protecting the World's firefighters

Specialist clothing & equipment

Bristol Uniforms is one of the World's leading designers and manufacturers of innovative firefighter protective personal equipment. We supply to fire and rescue services in over 110 countries offering a comprehensive range of equipment and services including:

- clothing that meets international performance standards for use in structural close proximity and wildland firefighting as well as urban search and rescue protective clothing
- a complete range of accessories, helmets, boots, gloves and tools
- Bristol Care™ - offering flexible solutions for garment care and maintenance.

Please visit our website for full details of all product and services or contact us directly.

Bristol Uniforms Ltd,
Bristol, United Kingdom. BS16 5LL
Telephone +44 (0) 117 956 3101
enquiries@bristoluniforms.co.uk
www.bristoluniforms.com



Making firefighting **safer!**



PAB Personal Protective Equipment

firefight series

Made of
composite fiberglass

FIRE HT 04 Composite

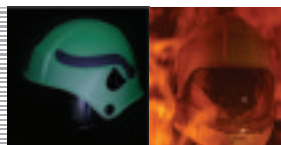
We are introducing the firefighter helmet of tomorrow. It is designed to protect the head in the most extreme conditions. Development and implementation of new composite technology in combination with established design enable full protection even at shorter (flash over flames) temperature exposures, reaching up to 1000 °C. These advantages are rounded up with extreme lightweight (1.200 g) and such design that supports a wide selection of compatible accessories. Structural firefighting has never been safer.



PAB Personal Protective Equipment
Most26, 52420 Buzet – Croatia

tel: +385 52 662 662
fax: +385 52 662 254

info@pab-buzet.com
www.pab-buzet.com



Picture courtesy of
Hochiki Europe



Let's hear it for the firefighters

By Yasmin Butt

Marketing Manager,
Hochiki Europe

When it comes to fire detection and alarm equipment, there is a tendency to focus entirely on occupant safety, overlooking the impact that system selection can have on the performance and safety of firefighters. So here, Yasmin Butt takes a closer look at what makes a fire alarm “firefighter friendly”.

Just about every piece of fire safety legislation around the world is driven by the need to achieve life safety; understandably the ease and efficiency in which occupants can be evacuated from a burning building being the primary concern. While this is an entirely commendable aim, the decision on what type of fire detection and alarm equipment is selected should surely also take into account the critically important needs of those whose lives may be in peril fighting the blaze.

Indeed, it is surprising that the impact that system selection may have on the firefighter is not more widely appreciated or taken into account. This is especially so considering the risks that firefighters face on a daily basis and the high regard that society generally has for their courage and professionalism. Perhaps this is because there is sometimes a failure to appreciate that the function of a fire detection and alarm installation does not

end with the arrival of the fire brigade? Certainly it is something that we should all give more thought to. With legislation internationally moving increasingly towards fire safety regimes based around risk assessment and fire engineered solutions, the safety of the firefighter is a responsibility that, globally, is becoming increasingly difficult to shirk – and rightly so.

So, what system features should we be looking for that will make the firefighter's life safer, and his or her job easier to perform? There are four areas that are worth considering, the technology for which is already widely available. These are: the need for the early detection of a fire; the importance of reducing, if not eliminating, false alarms; fast identification of the location and growth of a fire; and sufficient system versatility to enable the firefighter to influence “on the ground” response to the fire. Let us look at each of these in turn.

Picture courtesy of
Hochiki Europe



The need for early detection

A view commonly held by firefighters is that the actions taken in the first few minutes of a fire have a significant bearing on its outcome. Put that another way, the shorter the delay in detecting and raising the alarm, the greater the prospect of averting a possible disaster.

This has implications both regarding the selection of the most appropriate detection or sensing device and the speed in which the device is activated. So, it is important for owners and occupiers of buildings to ensure that the right sensor or detector is installed – and, of course, maintained – in the right locations. Far too frequently structural or occupational changes are made to a building without adequately reviewing the siting of detectors or questioning whether the detector is still the most appropriate choice in the newly prevailing circumstances. In short, get this equation wrong and the result might well be either a delay in detecting a genuine fire or wholly avoidable false alarms.

Eliminating false alarms

Although there is fairly widespread awareness that false alarms are disruptive and costly, it still surprises many to learn that, in the UK for example, there are upwards of 1,000 false alarms every day costing the British economy a staggering £1 billion

each and every year. Extrapolate that to a pan-Asia Pacific scale and the sum is mind-blowing.

The UK statistics are also a useful guide in terms of the impact on firefighters throughout the region. Around half of the calls to the UK's fire and rescue service are unwanted alarms, and many of these are generated by fire detection and alarm systems. For example, of the 13,500 signals from automatic fire alarms in Greater Manchester in 2006, the Greater Manchester Fire & Rescue Service reports that less than one percent were actual fires and fewer than half of those required firefighters to use equipment.

This adds a considerable cost burden to municipal fire brigades. Worse, it has the potential for scarce resources to be wasted attending a false alarmed "emergency" that could otherwise be used to have an earlier and possibly safer impact on a real fire.

In the past few years there have been a number of improvements to detection devices that have boosted their reliability and ability to distinguish between a real fire, environmental pollution and other conditions that might otherwise have initiated a false alarm. An example is Hochiki's Flat Response high performance chamber technology that is incorporated into all of its optical sensors and detectors. This provides the device with the optimum sensitivity to smouldering and flaming

MEMBERSHIP



Up-To-Date? It's Up to You!

NFPA® membership is indispensable for more than 81,000 professionals worldwide. What about you? It's an easy decision for anyone involved with protecting people and property, because NFPA keeps members on top of breakthroughs, research, and technology...and in control of their careers. **Join now and SAVE 10%** on NFPA codes, products, and seminars, while **you stay up-to-date** with:

- **NFPA Journal®**, the award-winning bimonthly membership magazine loaded with articles, codes and standards information, investigations, case studies, and reports
- Answers to your code questions from NFPA's experienced fire protection specialists
- Online issues of **NFPA News** for codes and standards activities, and **NFPA Update** for training opportunities and events
- FREE membership in any of 16 industry-specific sections including Fire Service; Building Fire Safety Systems; Health Care; Electrical; and Architects, Engineers, and Building Officials
- The latest **NFPA Journal Buyers' Guide**—your bonus gift valued at \$40

Gain a decided advantage on the job. Join NFPA today!

Become part of the world's largest organization for fire, electrical, and building safety professionals and stay up-to-date for only \$150 annual dues—satisfaction guaranteed.

**To join call 1-617-770-3000, or visit
nfpacatalog.org.**

fires. Re-engineering and refining the internal optics has enhanced, the sensor's or detector's reaction to a wider range of inputs.

Hochiki's ESP – or Enhanced System Protocol – analogue addressable open protocol incorporates a suite of false alarm management tools that further improves immunity from false alarms. This suite is called ARM or Alarm Reduction Management and includes drift compensation that, when activated by the control panel, automatically recalibrates every sensor every 24 hours.

ESP also provides what is called full digital transmission for exceptionally secure signalling, and incorporates checksum error checking to underpin the integrity of the data and ensure reliably correct communication. The protocol also has high immunity from electrical noise, so there are no false alarms due to corruption.

Ensuring clear addressability

The characteristics of each type of sensor and detector depend upon the type of fire detection and alarm system that is being installed.

These are commonly referred to as "conventional" or "non-addressable" systems and "analogue addressable" systems. In a conventional

has broken out; and orderly evacuation, possibly by people unfamiliar with the building, will be the firefighters' primary immediate concern.

Voice alarm systems can play a major role in overcoming some of these obstacles, particularly in shopping malls, leisure centres and hospitals where giving clear directions, zone by zone, on the appropriate course of action that should be taken can be vitally important. Voice alarms can also contribute by informing occupants when not to evacuate. An example of this is following a terrorist explosion, when the safest course of action is possibly to remain in the building, rather than to mass-evacuate, exposing everyone – firefighters included – to the danger of an explosive device targeted at the building's fleeing occupants.

Voice alarm systems such as Hochiki's FIREvac incorporate a prioritise mixer that designates the order of messages played, and ensures that the firefighter's microphone can override any background music, paging or pre-programmed messages with live announcements. Audio coverage can be enhanced for larger open areas by the addition of up to ten FIREvac slave panels for each FIREvac master panel or zone. These will repeat all of the firefighter's microphone and

The global trend for more and more buildings to be designed using fire engineering techniques rather than prescribed measures has placed greater responsibility on fire detection and alarm equipment manufacturers to devise ever more reliable, fast and accurate solutions.

or non-addressable installation, the detectors – the term "detector" is usually applied to non-addressable devices – are in one of two states, either normal or alarm. Individual detectors are not identified or given a specific "address" or location on the installation. This type of system tends to be used in smaller buildings and, from the firefighter's perspective, non-addressable systems provide little information beyond the fact that a fire has broken out.

Analogue addressable sensors – the term "sensor" being normally used for analogue addressable devices, such as Hochiki's Enhanced System Protocol – each have their own unique "address" number on the system's control panel. This means that the firefighter can immediately identify the site of a fire and, as other sensors are progressively activated as the fire spreads, track its development. Not surprisingly, these systems are invariably the preferred solution for high-hazard, large or complex buildings, or those with complicated or phased evacuation procedures.

Fire-scene management

Fire is not a static event; when the fire brigade arrives it is confronted by a dynamic and often fast developing scenario. Occupants may still be in the building; some may not even be aware that a fire

digital message broadcasts made at the master panel to which they are connected. Localised control of paging and background music is also possible, as each slave panel has its own paging and background music input.

The on-going fire safety challenge

The global trend for more and more buildings to be designed using fire engineering techniques rather than prescribed measures has placed greater responsibility on fire detection and alarm equipment manufacturers to devise ever more reliable, fast and accurate solutions. Building designers are using new materials and pioneering structural techniques, owners are demanding greater in-use flexibility, and occupiers are concerned for staff and visitor safety in any number of risk scenarios. To these concerns we must strive to ensure that the firefighter's needs are also addressed.

While events such as the terrorist attack on the World Trade Centre in 2001, where 346 firefighters lost their life, are beyond current technology's ability to influence or control, there will always be men and women prepared to forsake their own safety to rescue others. So, the industry's role must surely be to provide them with every possible facility to do their work effectively, proficiently and – above all – safely.

APF

Yasmin Butt is Marketing Manager of Hochiki Europe. She can be reached by telephone on +44 (0)1634 266566, or via email at news@hochikieurope.com. Hochiki Europe's website is at www.hochikieurope.com

You have 30 seconds to locate the missing person before it's too late.

Impossible?



Not if you have the Argus thermal imaging camera.

Thousands of fire and police units around the world rely on the technologically superior Argus thermal imaging camera to save lives and protect their own. Its high resolution detector, crystal clear display screen, and x4 zoom ensure maximum visibility in any situation. It's also extremely light at just 3lbs but not at the

expense of its strength. The Argus is one of the toughest cameras out there, withstanding extreme temperatures thanks to its rugged and durable casing. And with SceneSave image capture for up to 100 images, plus spot and ambient temperature detection the Argus won't leave you doubting its ability.

www.argusdirect.com

Camera shows are the Argus4 and the Argus4 HR320. Part of the Argus thermal imaging camera range.

argus®
thermal imaging from ezv



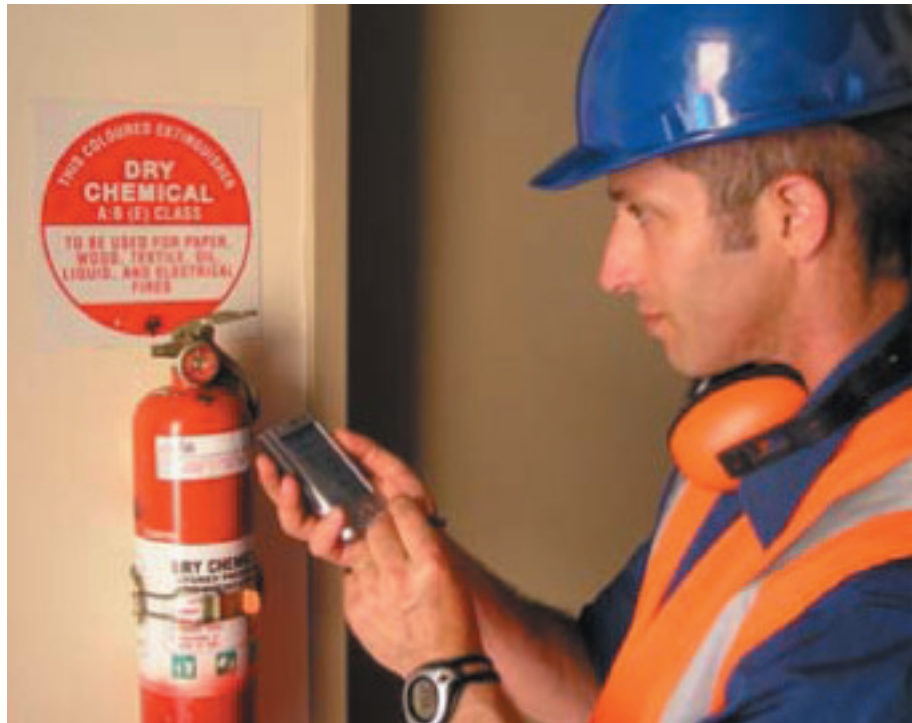
How warm air can prevent a fire.

The SecuriSens® ADW linear heat detector

Securiton AG, Alarm and Security Systems
www.securiton.com, info@securiton.com
A company of the Swiss Securitas Group

 **SECURITON**
For your safety

Automating Inspection Systems Using Hand



Over the past few years, automation has proven to be an important tool in the management of fire equipment inspections, maintenance, and service activities. It enables effective equipment tracking, scheduling, service management, and management of parts and inventories. Benefits include improved productivity, reduced downtime, increased equipment life expectancy, compliance with regulations, and lower overall maintenance costs.

By Naaman Shibi

Techs4Biz Australia Pty
Ltd*
(www.pervidi.com.au)

In the past, many desktop and web-based automation software packages offered 'paper-based' solutions, which required information to be 'manually' recorded both in the field and back in the office. Recently, the role of handheld devices and PDAs has gradually transformed from 'toys' used by early adopters, to day-to-day tools deployed by organizations that want to improve their staff's productivity and minimize unnecessary administrative tasks.

Can a PDA (handheld device) automate fire equipment inspections and replace paper work orders?

Absolutely. Most handheld devices operate on the Pocket PC (Microsoft) platform which can easily handle fire equipment inspection and service software.

Handheld devices should provide information that already exists on paper forms or on the desktop, whilst at the same time improve one's ability to access and utilize the data. A handheld user can pick results from a list of possible choices and

write or type in information, according to the organization's requirements, regulations and preferences. Handheld software should also be tailored towards field service personnel who need to perform their tasks using easy-to-use screens and functions. Furthermore, by simplifying navigation buttons and minimizing keystrokes, field technicians can learn to operate their PDA software in a very short timeframe.

The Desktop/Database/Server

From the outset, handheld applications should be designed to collect, display and manipulate information, and transfer it seamlessly between the desktop or server database, and the handheld device. The desktop/server application should provide a variety of operational and management functions including scheduling, tracking, reporting, and analysis tools.

The means of data transfer between handheld devices and the database can be through a standard cradle, wired modem, infrared, Bluetooth, email, or wireless communications.

on of Fire Protection held Devices

The benefits of combining software with handheld devices to service and inspect Fire Protection Systems and Equipment

Using handheld devices in conjunction with desktop/server software will automatically transfer data from the handheld to your database without the need for further data entry or data reformulation. In addition, the use of such technology will:

- ✓ Improve operational efficiencies.
- ✓ Increase productivity and profitability.
- ✓ Enable effective completion of tasks and simplify repeatable tasks.
- ✓ Incorporate mechanisms to focus on exceptions and ensure proper execution of tasks, including automatic listing of activities, reminders, alerts, escalation procedures, and easy access to information.
- ✓ Ensure that service is performed according to warranties, guidelines and regulations.

How does a fire equipment service provider find the right solution?

By following three simple steps, described below, fire equipment inspectors/service providers can accelerate the selection process and ensure that the chosen package fits their needs:

1 Firstly, determine what you want the solution to do for you. Make sure you understand your current processes and information flow.

Try to answer the following questions:

- List things that work well within your current process and things that can improve. Focus on the process and not on software or computers.
- Prioritise potential improvement areas.
- Describe a short scenario where improvements can achieve your objectives. For example, minimize unnecessary administrative responsibilities such as the rescheduling of preventative maintenance tasks, or eliminating unnecessary data entry.

At this point, you have gathered your requirements. Now try to answer the following:

- Who will use the system? How skilled are the users with computers? (Always separate field staff requirements from managers and supervisors).
- What are your procedures for paperwork flow? Will the software improve this flow or make it worse?

2 Next, evaluate features offered by different software providers and compare them to your needs. Create a list of desired features so you can comparatively assess software solutions without becoming confused (or blindsided) by the different vendor presentations. Keep in mind that certain packages offer significantly better value than their competitors, both in terms of functionality, ease of use, and price.

The differences between the packages can be highlighted in the following areas:

- How comprehensive is their solution and their PDA software? Is it easy-to-learn and easy-to-use?
- How easily does the PDA integrate with the desktop/server component?
- Does the package enable efficient planning and execution of work activities?
- Does the package enable multiple activities such as preventative maintenance, repairs, inspections, work orders, and asset tracking?
- Does the solution minimize unnecessary administrative tasks?
- Does it include management functions, reports, queries and exceptions? Can the solution help planning and can it highlight problem areas?

3 Finally, determine the best value and fit for your organization.

Once you have created a short list of potential software packages, look at the following factors to choose 'the right solution for you':

- Is the provider willing to tailor the solution to your needs?
- Can you customize settings, such as field names, and screens available to each user?
- Will you be able to expand the use of the package without 'hidden' module charges, costs and complexities?
- Does the package include future software releases, so that as additional features are added you will receive upgrades without excessive additional charges?
- And finally, is the solution within your budget?

Maintaining this focused approach is the best way to select a fire equipment service package that is right for your needs. By taking the time to systematically research and evaluate your options, a better informed decision can be made.

How much should it Cost?

The evaluation process described above should include cost estimates for such solutions. However, you may also wish to evaluate the cost in terms of ROI (Return on Investment). Try to calculate your savings, in terms of minimizing data entry efforts, improving information flow and information accuracy, easy access to customer queries and audits, shortening the timeframe it takes to issue an invoice (if relevant), etc.

Once you have estimated your savings (including both tangible and intangible benefits), you can evaluate the amount of money you are willing to invest on such a system. ROI should be between 6 and 12 months.

APF

**Techs4Biz develops and provides technology solutions for improving work-related activities and processes, combining software with handheld devices. Techs4Biz has offices in Australia, Canada and the U.S. info@techs4biz.com*

Distributor and Representative Offices

BLÜCHER GMBH

SINGAPORE

Contact: Mr. Raymond Hoi
Account Manager Blücher Office
Singapore
Cell: +65 903 06972
Email: raymond@bluechersg.com
Website: www.bluecher.com
Representative Office

BRISTOL UNIFORMS

AUSTRALIA

PACIFIC HELMETS AUSTRALIA PTY LTD

Abn 60 088 233 783
Unit 1/28 Burnside Road
Hallmarc Business Park
Yatala Qld 4207
Contact: Keith Ward
Tel: 1300 73 1800
Fax: 07 3441 7177
Email: keith@pacifichelmetsaust.com
Website: www.pacifichelmetsaust.com
Dealer/Distributor

BANGLADESH

MANIK BROTHERS

Hai Mansion (3rd Floor)
9/3 Motijheel Circular Road
Dhaka – 1000, Bangladesh
Contact: Mr A K Bhowmick
Tel: +880 2 7100 589
Fax: +880 2 7100 386
Email: manikbrs@1postbox.com
Dealer/Distributor

BRUNEI

DASAPREM (M) SDN BHD

10 & 12 Jalan Muara 8/9
40000 Shah Alam
Selangor, Darul Ehsan
Malaysia
Contact: Mr Prem R Murthy
Tel: +603 550 9060
Fax: +603 550 4486
Email: dasaprem@yahoo.com
Website: www.dasaprem.com
Dealer/Distributor

CHINA

SHENZHEN RUFN INDUSTRIAL CO LTD

RM-701, 7/F Leaser Tower
1st Fuhua Rd
Shenzhen
China
Contact: Amy Jin
Tel: +86 755 8399 9581
Fax: +86 755 8399 9548
Email: wj@ruffn88.com
Dealer/Distributor

FIJI

PHILLIPS & SMITH LIMITED

10 Akatea Road
Glendene
Auckland
New Zealand
Contact: Mr S Hampton
Tel: +649 818 8048
Fax: +649 818 4484
Email: stuart@firemaster.co.nz
Website: www.firemaster.co.nz
Dealer/Distributor

HONG KONG

CHUBB HONG KONG LIMITED

3 Hok Yuen Street East
Hung Hom, Kowloon
Hong Kong
Contact: Mr Simon Tsang
Tel: +852 2746 9628
Fax: +852 2785 0849
Email: simonsft.chubb.com.hk
Website: www.chubb.com.hk
Dealer/Distributor

INDIA

FOREMOST MARKETING PVT LTD

M-1 Green Park Extn, New Delhi 110016, India
Contact: Mr Vinay Khanna
Tel: +91 11 261 969 82
Fax: +91 11 261 669 61
Email: foremost@vsnl.net
Website: www.foremostsafety.com
Dealer/Distributor

JAPAN

ABLE-YAMAUCHI CO LTD

Yokohama Nishiguchi, SIA Building, 10-36
Kitasaiwai, 2-Chome Nishi-Ku
Yokohama 220-0004, Japan
Contact: S. Yamauchi
Tel: +81 45 312 1130
Fax: +81 45 312 1350
Email: emiko@able-yamauchi.co.jp
Website: www.able.yamauchi.co.jp
Dealer/Distributor

MALAYSIA

DASAPREM (M) SDN BHD

10 & 12 Jalan Muara 8/9
40000 Shah Alam
Selangor Darul Ehsan, Malaysia
Contact: Mr Prem R Murthy
Tel: +603 550 9060
Fax: +603 550 4486
Email: dasaprem@yahoo.com
Website: www.dasaprem.com
Dealer/Distributor

NEW ZEALAND

PHILLIPS & SMITH LIMITED

10 Akatea Road, Glendene
Auckland, New Zealand
Contact: Mr S Hampton
Tel: +649 818 8048
Fax: +649 818 4484
Email: stuart@firemaster.co.nz
Website: www.firemaster.co.nz
Dealer/Distributor

SINGAPORE

YEN LEE FIREWELD PTE LIMITED

18 Penhas Road, 208182
Singapore
Tel: + 65 62909890
Fax: + 65 62961444
Email: jeffrey@fireweld.com.sg
Website: www.fireweld.com.sg
Dealer/Distributor

SRI LANKA

FIRETECH (PRIVATE) LIMITED

34 Walter Gunsekara Mawatha
Nawala, Sri Lanka
Contact: Leon Daniels
Tel: +94 11 4410588
Fax: +94 11 2806666
Email: firetech@pan.lk
Dealer/Distributor

TAIWAN

SHENG-TAI FIRE PROTECTION INDUSTRIAL CO LTD

No 222-2 Sec2, Cheng Tai Rd
Wu-Ku Shiang, Taipei, Hsien, Taiwan
Contact: Liu Yuan Hung
Tel: +886 22292 1751
Fax: +886 22291 1984
Email: sato@mail.mold.net.tw
Website: www.shengtai.com.tw
Dealer/Distributor

VIETNAM

TRAN VU TRADING CO LTD

61 Ban Co Street, District 3
Hochiminh City, Viet Nam
Contact: Tran Vu Hong
Tel: +84 88325101
Fax: +84 88309586
Email: sales@tranvufire.com
Website: www.tranvufire.com
Dealer/Distributor

DRAEGER SAFETY

AUSTRALIA

DRAEGER SAFETY PACIFIC

Axxess Corporate Park, Unit 99, 45 Gilby Road
Mount Waverley, Victoria 3149
Tel: +61 3 9265 5000
Fax: +61 3 9265 5097
Email: customer.service@draeger.com
Representative Office

CHINA

BEIJING FORTUNE DRAEGER SAFETY EQUIPMENT CO LTD

Yu An Lu 22, B Area
Beijing Tianzhu Airport Industrial Zone
Shunyi District, Beijing, 101300
Tel: +86 10 8049 8000
Fax: +86 10 8049 8005
Email: sales.safety.cn@draeger.com
Representative Office

INDIA

JOSEPH LESLIE DRAEGER MFG PVT LTD

Leslico House, Dadar (W)
Mumbai – 400 028, India
Contact: Prof. V.S. Agashe Marg
Tel: +91 22 2422 7587/1880
Fax: +91 22 2430 3705
Email: mumbai@lesliedraeger.com
Representative Office

INDONESIA

PT DRAEGERINDO JAYA

Jl. Pangeran Antasari No. 67
Cilandak Barat Unit L, Jakarta
Selatan 12430
Tel: +6221 751 3289
Fax: +6221 751 2052
Email: product_support@draeger.co.id
Representative Office

JAPAN

DRAEGER SAFETY JAPAN LTD

3-8-1 Toyo Koto-ku
Tokyo, Japan
Japan Zip 135-0016
Tel: +81 3 44 615111
Fax: +81 3 44 615100
Email: dlsjp-sales@draeger.com
Representative Office

KOREA**DRAEGER SAFETY ASIA**

Daejong Bld. #1106
Bang-l-dong, Songpa gu, Seoul, Korea
Tel: +82 2 6415 8222
Fax: +82 2 6415 8223
Email: sdseo3@magicn.com
Representative Office

MALAYSIA**DRAEGER SAFETY ASIA PTE LTD**

14 Jalan PJS 11/18
Sunway Technology Park, 46150 Petaling
Jaya, Selangor
Tel: +60 3 5635 6460
Fax: +60 3 5635 4171
Email: dsa.malaysia@draeger.com
Representative Office

NEW ZEALAND**DRAEGER SAFETY PACIFIC PTE LTD**

Unit O, No. 150
Harris Road, East Tamaki, Auckland
Tel: +649 273 3160
Fax: +649 273 3159
Email: customer.service@draeger.com
Representative Office

SINGAPORE**DRAEGER SAFETY ASIA PTE LTD**

67 Ayer Rajah Crescent #06-03
Singapore 139950
Tel: +65 6872 9281
Fax: +65 6773 2033
Email: dsa.singapore@draeger.com
Website: www.draeger.com.sg
Regional Head Office

TAIWAN**DRAEGER SAFETY TAIWAN CO LTD**

12/F, Kuohwa Building
868-5 Chungcheng Rd, Chungho City
Taipei county 235
Tel: +886 (02)2223-6388
Fax: +886 (02)2223-2258
Email: sales.taiwan@draeger.com
Representative Office

THAILAND**DRAEGER SAFETY (THAILAND) LTD**

123/20, Nonsi Road
Kwaeng Chongnonsi, Khet Yannawa
Bangkok 10120
Tel: +662 6811 781 (4 lines)
Fax: +662 6811 780
Email: sales.thailand@draeger.com
Representative Office

VIETNAM**DRAEGER SAFETY ASIA PTE LTD**

No. 5
A2 Nguyen Khanh Toan Str.
Cau Giay District, Hanoi, Vietnam
Tel: +84 4 281 3463
Fax: +84 4 281 3461
Email: sales.safety.vn@draeger.com
Representative Office

E2V TECHNOLOGIES**HONG KONG****ARGUS E2V**

11/F Onfem Tower
29 Wyndham Street
Central Hong Kong
Tel: +852 3679 364 8/9
Fax: +852 3583 1084
Email: argus.enquiries-ap@e2v.com
Representative Office

INDIA**FOREMOST MARKETING PVT LTD**

M-1, Green Park Extn
New Delhi 1100016
India
Tel: 00 91-11-261-96982
Fax: 00 91-11-261-66961
Email: foremost@vsnl.net
Website: www.foremostsafety.com
Dealer/Distributor

JAPAN**CORNES DODWELL LTD (OSAKA)**

13-40 Nishihonmachi, 1-chome
Nishi-ku
Osaka 550-0005, Japan
Tel: +81-6-6532-1012
Fax: +81-6-6532-7749
Email: e-device@cornes-dodwell.co.jp
Website: www.cornes-dodwell.co.jp
Dealer/Distributor

KOREA (SOUTH)**GODO ENGINEERING CO LTD**

1FL. 142-5, Yeonhee-2
Dong Soedaemun-Gu, Seoul
Korea, 120-112
Tel: 822-3141-1236
Fax: 822-3141-1270
Email: info@godoeng.com
Website: www.godoeng.com
Dealer/Distributor

FIKE**AUSTRALIA****FIRE PROTECTION TECHNOLOGIES
PTY LTD**

Unit 14
42-44 Garden Blvd, Dingley
Victoria 3712, Australia
Tel: +61 3 9558 0715
Fax: +61 3 9558 0725
Email: Enquiries@fire-protection.com.au
Website: www.fire-protection.com.au
Dealer/Distributor

BANGLADESH**NAVANA INTERLINKS LTD**

205-207 Tejgaon I/A
Dhaka-1208, Bangladesh
Tel: +88 02 -9892911
Fax: +88 02 -9895252
Email: info@navana-iv.com
Dealer/Distributor

HONG KONG**THE JARDINE ENGINEERING
CORPORATION LTD**

13/F Somerset House
Taikoo Place, 979 King's Road
Hong Kong
Tel: +852 2807 4562
Fax: +852 2503 4210
Email: Keith.lam@jec.com
Website: www.jec.com
Dealer/Distributor

INDIA**NEWAGE INDUSTRIES**

Champaklal Ugyog Bhavan
Unit No. 7, Sion (East)
Mumbai 100 022, India
Tel: +91 22 2407 7421
Fax: +91 22 2407 4229
Email: info@newage-india.com
Website: www.newage-india.com
Dealer/Distributor

INDONESIA**KARYA LESTARI MAKMUR PT**

Jl. Pangeran Jayakarta
85AK, Jakarta 10730, Indonesia
Tel: +62 21 628 1933
Fax: +62 21 628 1976
Email: johnklima@cbn.net.id
Dealer/Distributor

KOREA**PARADISE INDUSTRY CO LTD**

#683-116 Hannam-Dong
Yongsan-Ku, Seoul, South Korea
Tel: +82 2 3780 8770
Fax: +82 2 3780 8772
Email: shlee@paradise-ind.co.kr
Website: www.paradise-ind.co.kr
Dealer/Distributor

MALAYSIA**FIKE ASIA PACIFIC SDN BHD**

18B Jalan Astaka L U8/L
Bukit Jelutong, 40150 Shah Alam
Selangor, Malaysia
Tel: +60 3 7859 1462
Fax: +60 3 7859 1461
Email: Chun-wah.leong@fike.com
Website: www.fike.com
Representative Office

SUKIADA ENGINEERING SDN BHD

No. 20 Jalan Astaka L U8/L
Bukit Jelutong, 40150 Shah Alam
Selangor, Malaysia
Tel: +60 3 7845 2008
Fax: +60 3 7845 6008
Email: sukiada@sukiada.com.my
Website: www.sukiada.com.my
Dealer/Distributor

PAKISTAN**MGH ENGINEERING AND CONTROL
PVT LTD**

H. # 20 St., #5/A Kot Shahabdin
Shahdrah, Lahore 54950, Pakistan
Tel: +92 - 42 - 7913064
Fax: +92 - 42 - 7913064
Email: mansoorshaker@yahoo.com
Website: www.mgheng.com
Dealer/Distributor

PHILIPPINES**FIRE SOLUTIONS INC**

Room 401, CBT Condominium
60 West Avenue
Quezon City 1104, Philippines
Tel: +63 2 371 9774
Fax: +63 2 374 3041
Email: firesolutions@skyinet.net
Dealer/Distributor

SINGAPORE**FICON PTE LTD**

11, Toh Guan Road East
05-01, Singapore 608603
Tel: +65 6895 8820
Fax: +65 6425 5972
Email: Janelow@ficon.com.sg
Dealer/Distributor

SRI LANKA**BUILDING SERVICES (M&E)
ENGINEER INTERNATIONAL
PVT LTD**

122 Dawson Street
Colombo-02, Sri Lanka
Tel: +94 11 471 7500
Fax: +94 11 245 4653
Email: bldserv@sltnet.lk
Dealer/Distributor

TAIWAN**SUNMORN INC**

7F.-2, 76, Nan Jing W. Road
 Taipei 103, Taiwan
 Tel: +886 2 2550 3500
 Fax: +886 2 2550 5350
 Email: services@sunmoreinc.com
 Website: www.sunmoreinc.com
Dealer/Distributor

THAILAND**ANTI-FIRE CO LTD**

316-316/1, Sukhumvit 22 Road
 Klongtoey, Bangkok 10110
 Thailand
 Tel: +66 2 260 4565 9
 Fax: +66 2 258 2422
 Email: sithichai@antifire.com
 Website: www.antifire.com
Dealer/Distributor

FIRE FIGHTING ENTERPRISES

AUSTRALIA**AMPAC TECHNOLOGY PTY LTD**

97 Walters Drive
 Perth, Australia 6017
 Tel: +61 892 423 333
 Fax: +61 892 423 334
 Website: www.ampac.net
Dealer/Distributor

BAHRAIN**KHAYBER TRADING COMPANY**

W.L.L.
 P.O. Box No. 1976
 Cr.No. 40189-01
 Manama, Bahrain
 Email: FX ABB 50
Dealer/Distributor

CYPRUS**M.T. PIPERARIS TRADING LTD**

Nafpactou 19a
 Lemesos 3051
 Cyprus
 Tel: +357 5 737311
 Fax: +357 5 737310
Dealer/Distributor

HONG KONG**HLK SERVICES LTD**

Room 1111, Tower B
 Hung Hom Comm'c'l Centre
 39 Ma Tau Wai Road, Hung Hom
 Kowloon, Hong Kong
 Tel: +852 23303083
 Fax: +852 23656128
Dealer/Distributor

INDIA**NITIN FIRE PROTECTION**

Industries Ltd
 501, Delta Technology St.
 Hirananandani Gardens
 Powai, Mumbai -400 076, India
 Tel: +91 22 25700392
 Fax: +91 22 25701110
Dealer/Distributor

ISRAEL**AAP TECHNOLOGY LTD**

84, Ben-Tzvi Road, Panarama House
 61364 Tel-Aviv, Israel
 Tel: +972 3518 1444
 Fax: +972 3518 1445
Dealer/Distributor

TELEFIRE FIRE & GAS

Detectors Ltd, P.O.B 7036
 Petach-Tikva 49250, Israel
 Tel: +972 3 9211955
 Fax: +972 3 9211816
Dealer/Distributor

IRAN**NAR KOOB IRAN**

Apt 7, 3rd Floor
 No 32, Varavini St. Amir Atabak
 St. Ostad Motahari Ave., Tehran – Iran
 Tel: +98 21 88842649
 Fax: +98 21 88307405
Dealer/Distributor

KOREA**HI MAX CO LTD**

Sicox Tower, 115-Ho 513-14
 Sangdaewon-Dong, Jungwon-Gu
 Sungnam-City, Kyungki Do, Korea
 Tel: +82 31 769 7698
 Email: khkim@himax119.co.kr
Dealer/Distributor

MALAYSIA**FITTERS ENG SERVS SDN BHD**

No.1 Block C, Jalan Dataran, Sd1 Pju 9
 52200 Bandar Sri, Damansara
 Kuala Lumpur, Malaysia
 Tel: +60 3 62767155
 Fax: +60 3 62758712
Dealer/Distributor

NEW ZEALAND**AMPAC INDUSTRIES LIMITED**

P.O. Box 100-149
 North Shore Mail Centre
 Glenfield, Auckland
 Tel: +64 94438072
 Fax: +64 94438073
Dealer/Distributor

QATAR**AL SHAIBEH ESTABLISHMENT**

P.O. Box 3975, Doha, Qatar
 Tel: +974 4322140
 Fax: +974 4416650
Dealer/Distributor

SINGAPORE**ACCLAIM SYSTEMS PTE LTD**

Blk 104, Boon Keng Road
 05-01 Singapore 339775
 Tel: +656 2990 798
 Fax: +656 299 3735
Dealer/Distributor

ALARM SUPPLY PTE LTD

63 Jalan Pemimpin
 03-07, Pemimpin Industrial Bldg
 Singapore 577219
 Tel: 00 656 258 3445
 Fax: 00 656 258 6428
Dealer/Distributor

SRI LANKA**FIRETECH (PVT) LTD**

34, Walter Gunasekara
 Mawatha, Nawala, Sri Lanka
 Tel: +94 1 806613
 Fax: +94 1 806666
Dealer/Distributor

SYRIA**ESS COMPANY**

P.O. Box 35478
 Damascus
 Syria
Dealer/Distributor

TAIWAN**HORING LIH IND CO LTD**

4f No 18 Lane 327
 Chung Shan Road
 Sec 2 Chung-Ho-City
 Taipei Hsien, Taiwan
 Tel: +886 2224 87599
 Fax: +886 2224 07752
Dealer/Distributor

THAILAND**F.B. (THAILAND) LTD**

75 Soi Rubia
 Sukhumvit 42 Road, Bangkok 10110
 Thailand
 Tel: +66 2 3902445
 Fax: +66 2 3811197
Dealer/Distributor

TEEYA MASTER SYSTS CO LTD

100/101-102 Vongvanji
 Building B
 30th Flr, Rama 9 Road
 Huaykhwang
 Bangkok 10320
 Thailand
 Tel: +662 2 6451130
 Fax: +662 2 2488540
Dealer/Distributor

UNITED ARAB EMIRATES**BAHRI & MAZROEI TRADING CO**

P.O. Box 1247
 Deira – Dubai, U.A.E
 Tel: +971 42691610
 Fax: +971 42664627
Dealer/Distributor

NAFFCO

P.O. Box 17014
 Jebel Ali Free Zone Area
 Dubai, U.A.E
 Tel: +971 4 881 5653
 Fax: +971 4 881 6229
 Email: girish@naffco.ae
Dealer/Distributor

TELECTRON

P.O. Box 2946, Al Salam Street
 Bldg. No.5, Abu Dhabi, U.A.E
 Tel: +971 26795333
 Fax: +971 26794609
Dealer/Distributor

HOLMATRO RESCUE EQUIPMENT

AUSTRALIA**CHUBB FIRE SAFETY LTD**

120, Silverwater Road
 Silverwater, NSW 2128
 Locked Bag 102, Silverwater 1811
 Contact: Andrew Loftus
 Tel: 1300 369 309
 Fax: 02 8748 7450
 Email: firesafety@chubb.com.au
 Website: www.chubb.com.au
Dealer/Distributor

CHINA**HOLMATRO CHINA****UNIT 14/D – 9 JOY TOWER**

9 Zhen Ning Road
 Shanghai 200050, P. R. China
 Contact: Floris Evers
 Tel: +86 21 5238 7330
 Fax: +86 21 5238 7320
 Email: china@holmatro.com
 Website: www.holmatro-china.com
Representative Office

HONG KONG**ABLESLINK CO LTD**

Unit B4, 2/F, Block B
Sheung Shui Plaza, 3 Ka Fu Close
Sheung Shui, N.T., Hong Kong
Contact: Mr. Randy Hau
Tel: +852-2466 4568
Fax: +852-2466 4569
Email: ableslink@yahoo.com
Dealer/Distributor

INDONESIA**PT ESA KARYA MANDIRI
JL.SUNTER PARADISE**

Timur Raya, F21 No.C42, Jakarta 14350
Contact: Ir.Benny N Liem
Tel: 062-21-6412936/65303502
Fax: 062-21-6412937
Email: esakarya@cbn.net.id
Dealer/Distributor

JAPAN**AKAO & CO LTD**

4-13-1 Shinmachi Nishi-ku
Osaka, Japan 550-0013
Contact: Masaya Saga
Tel: +81-6-6532-6256
Fax: +81-6-6532-3095
Email: info@akao-co.co.jp
Website: www.akao-co.co.jp
Dealer/Distributor

KOREA (SOUTH)**KEO WHA HITEC CO LTD**

Rm-1Fl, Jiwoo Bldg, 376-12
Seogyo-dong, Mapo-gu
Seoul, Korea
Contact: Mr. Kenneth Zyung
Tel: 82-(02)-336-0145-7
Fax: 82-(02)-336-0180
Email: jfckenneth@yahoo.co.kr
Website: www.kh-hitec.com
Dealer/Distributor

MALAYSIA**PANDAN NIAGA SDN BHD**

No. 81A, Jalan Tabla 33/21
Shah Alam Technology Park
Section 33
40400 Shah Alam
Selangor Darul Ehsan, Malaysia
Contact: Mohd Rashdi Abd Rahman
Tel: +603 5122 1310
Fax: +603 5122 1279
Email: pnsb@pn.com.my
Dealer/Distributor

NEW ZEALAND**CHUBB FIRE & SAFETY**

3 Fisher Crescent, Mt Wellington
Auckland
Contact: Steve Kirk
Tel: +64 9 270 7441
Fax: +64 9 270 7235
Email: fireandsafety@chubb.co.nz
Website: www.chubb.co.nz
Dealer/Distributor

PHILIPPINES**WALLGREEN INDUSTRIAL VENTURES
CORP**

62 West Avenue
Quezon City
Philippines 1104
Contact: Francisco C. Dizon
Tel: +6 32 411 0818
Mobile: +6 32 0917 820 1947
Fax: +6 32 411 0818
Email: wivcor@yahoo.com
Dealer/Distributor

TAIWAN**PARKSON TRADING CO LTD**

10F, No. 32, Wen-Jung Road
Guo-Shan Dist., Kaohsiung City
80464 Taiwan, R.O.C.
Contact: Mr. Johnson Peng
Tel: +886-7-552-1650
Fax: +886-7-552-7999
Email: ptckpeng@parkson.com.tw
Dealer/Distributor

LANCIER**AUSTRALIA****FIRE & SAFETY WA**

Unit 2/63 Furniss Road, Landsdale WA
Contact: Kerry Lovett
Tel: +61 89 3023210
Fax: +61 89 3026110
Email: firewa@fireandsafetywa.com.au
Website: www.fireandsafetywa.com.au
Dealer/Distributor

BANGLADESH**ARION OVERSEAS**

186/1 Inner Circular Road
1000 Dhaka
Bangladesh Motijheel
Tel: +880 27101369
Fax: +880 27100043
Email: arion@bdcom.com
Dealer/Distributor

BRUNEI**HANG SAN HARDWARE**

A13 & A14 Warisan Complex/Jln. Gadong,
BE3919/P.O. Box 1770/Bandar Seri Begawan
BS8673
Tel: +67 324 7995
Email: hangsanbsb@yahoo.com
Dealer/Distributor

HONG KONG/CHINA/MACAU/TAIWAN**GRAND POWER ENGINEERING**

Tower A Room 503, Hung Hom
Kowloon, Hong Kong
Tel: +852 2365 52525
Fax: +852 2764 0237
Email: info@howswing.com
Website: www.howsing.com
Dealer/Distributor

INDIA**NEW AGE INDUSTRIES**

Ambawadi Industrial Estate
Gujarat
Tel: +91 2752 243651
Fax: +91 2224 074229
Email: neage@bom3.csnl.net.in
Website: www.newage-india.com
Dealer/Distributor

INDONESIA**P.T. SABERINDO PACIFIC**

Kompleks Ruko Cempaka Mas/
Blok J No. 10 Jl./Letjen Suprpto/10640 Jakarta
Tel: +62 214 2888282
Fax: +62 214 2884704
Email: saberindo@saberindo.co.id
Dealer/Distributor

KOREA**HOVERTECH**

Sejin Bronzville 1415
Maesanro 1 Ga, Paldalu, 442-081 Suwon
Tel: +82 312571415
Fax: +82 312571415
Email: clee@ihovortech.com
Dealer/Distributor

MALAYSIA**LSL-MERCURY**

11, Jalan 31/63, Kota Kemuning
Section 31
40706 Shah Alam, Selangor D.E.
Tel: +60 35 222811
Email: macsl@pd.jaring.my
Dealer/Distributor

NEW ZEALAND**LANCIER SOUTHWEST PACIFIC LTD**

64-66 Huia Road
Auckland, New Zealand
Tel: +64 9 276 0405
Fax: +64-9-276 6215
Representative Office

PAKISTAN**AHMAD MEDIX (PVT) LTD**

129/6 Quaid-e-Azam
Industrial Estate
Township, Lahore
Tel: +92 42 5213441
Fax: +92425213441
Email: info@ahmadmedix.com
Dealer/Distributor

SINGAPORE**MCALISTER & COMPANY LTD**

257 Jalan Ahmad Ibrahim SG
62914 Singapore
Tel: +65 6266 3088
Fax: +65 6265 7863
Dealer/Distributor

THAILAND**EMPIRE TECH CO LTD**

26/13-14, 26/15 Suit 101
11140 Nonthaburi
Tel: +662 595 5027
Fax: +662-595-5029
Dealer/Distributor

VIETNAM**ANH HONG TECHNOLOGY
DEVELOPMENT CO**

133 Thai Ha Str., Hanoi
Tel: +84 4 3537 4250
Fax: +84-4 3537 4280
Email: anhhong-tdc@hn.vnn.vn
Dealer/Distributor

**PERMALIGHT (ASIA)
CO LTD****HONG KONG****PERMALIGHT (ASIA) CO LTD**

4/F Waga Commercial Centre
99 Wellington Street
Central Hong Kong
Tel: +852 2815 0616
Fax: +852 2542 3269
Email: pila@biznetvigator.com
Website: www.pilatorch.com
Representative Office

**SCOTT HEALTH &
SAFETY****AUSTRALIA/NEW ZEALAND****SCOTT HEALTH & SAFETY –
AUSTRALIA/NEW ZEALAND**

137 McCredie Road
Guildford, NSW 2161
Australia
Email: shscs@tycoint.com
Representative Office

**SCOTT HEALTH & SAFETY –
AUSTRALIA/NEW ZEALAND**

Unit 4, Deakin Street
Brendale, QLD 4500, Australia
Tel: +61 7 3804 6814
Fax: +61 7 3204 3807
Email: Scottmarketing.anz@tycoint.com
Website: www.scotthealthsafety.com

Representative Office**CHINA****SHANGHAI EAGLE SAFETY
EQUIPMENT LTD**

No. 1, Lane 955, Jinhai Rd, Pudong, Shanghai
Tel: +86 (0) 21 6163 3376
Fax: +86 (0) 21 6163 3372
Website: www.eagle-sh.com

Dealer/Distributor**SINGAPORE****SCOTT HEALTH & SAFETY**

No. 2 Serangoon North Avenue 5
#07-01, Singapore 554911
Contact: Tom Barrett
Tel: +(65) 9823-5700 Fax: +(65) 6245-6718
Email: tbarrett@tycoint.com

Representative Office**SECURITON****ASIA PACIFIC****SECURITON (M) SDN BHD**

No. 19A, Lorong Rahim Kajai 13
Taman Tun Dr. Ismail
MY-60000 Kuala Lumpur, Malaysia
Contact: Mr Lewis Chong
Tel: +60 3 7725 1699
Fax: +60 3 7725 1677
Email: asia@securiton.com.my
Website: www.securiton.com

Representative Office**AUSTRALIA****AUSTRALIAN FIRE ENTERPRISES (AFE)**

P.O. Box 7027, Mannerling Park
NSW 2259, Australia
Contact: Mr Mike Donegan/Mr Brett Gordan
Tel: 61 2 43 592 244
Fax: 61 2 43 593 301
Email: sales@austfire.com.au/
afe@ozemail.com.au

Dealer/Distributor**NATIONAL SECURITY &
SURVEILLANCE**

38 Lambert Street Richmond
Victoria 3121, Australia
Contact: Mr Dominic Paruit
Tel: +61 3 9428 8055
Fax: +61 3 9428 8065
Email: dominic.paruit@natss.com.au
Website: www.natss.com.au

Dealer/Distributor**CHINA, BEIJING****SWISS SECURITAS FIRE AND SECURITY
SYSTEMS TECHNOLOGY (BEIJING) CO
LTD**

Room 1808-11
18th Floor Shouchuang Mansion
No.6 North Street, Chaoyangmen
Dongcheng Area, Beijing 100027
P.R.China
Contact: Mr Lewis Chong/Mr Todd Zeng
Tel: +86 10 6406 0558
Fax: +86 10 6406 6934
Email: todd.zeng@securiton.cn
Website: www.securiton.cn

Dealer/Distributor**BEIJING Z-N MECHANICAL &
ELECTRICAL EQUIPMENT CO LTD**

1 #B910,Lingdi Office,No.13 Beiyuan Lu
Chaoyang District Beijing, China 100012
Contact: Ms Sarah Zhang
Tel: 86 10 5207 3836
Fax: 86 10 5207 3839
Email: sarahzh@vip.sina.com/
bjzhongna@yahoo.com.cn

Dealer/Distributor**CHINA, SHANGHAI****SWISS SECURITAS (BEIJING) CO LTD
SHANGHAI COMPANY**

Room A, 23rd Floor Shimei Mansion
No. 445 Jiangning Road Jing'an Area
Shanghai 200041, P.R.China
Contact: Mr Lewis Chong/Mr Todd Zeng
Tel: + 86 21 5228 8111
Fax: + 86 21 5228 8325
Email: todd.zeng@securiton.cn

Dealer/Distributor**SHANGHAI ZHENYE INDUSTRY CO LTD**

No, 3 221, Cao Bao L
Shanghai, 200233
Contact: Mr Jack Shen
Tel: 86 21 6451 2922/2933
Fax: 86 21 6451 9955
Email: sy1199@163.com
Website: www.shzhenye.com

Dealer/Distributor**CHINA, SHENZHEN****SHENZHEN YAOHUAJI CHINA CO LTD**

RM.F, 20th Floor Yong – Hui Building
Guo-Qi Building, Shenzhen
Contact: Mr Raymond Ng/Ms Shi
Tel: +86 755 8212 9831
Fax: +86 755 8212 9909
Email: rng@ywk.com.hk
Website: www.ywk.com.hk

Dealer/Distributor**HONG KONG****YIU WAH (KOGARAH) CO LTD**

Room 901, 9th Floor,
No 113 Argyle Street
Mongkok, Kowloon
Hong Kong
Contact: Mr Raymond Ng
Tel: +852 2781 1384
Fax: +852 2782 6652
Email: ywk@ywk.com.hk
Website: www.ywk.com.hk

Dealer/Distributor**INDIA, MUMBAI****BAJAJ ELECTRICALS LTD**

15/17, Sant Savta Marg, Reay road
Mumbai – 400010
Contact: Mr. Ravichandran Sr. General
Manager
Tel: +91 22 2372 4192
Fax: +91 22 2373 0504
Email: bms@bajajelectricals.com
Website: www.bajajelectricals.com

Dealer/Distributor**VIMAL FIRE CONTROLS PVT LTD**

19/20 Vardhaman Service
Industrial Estate, L.B.S. Marg.
IN-400083 Vikhroli (West) Mumbai
India
Contact: Mr Vijay Doshi/Mr Nalin Doshi
Tel: +91 22 2578 3335
Fax: +91 22 2578 3338
Email: nalin@vimalfire.com/
falgun@vimalfire.com
Website: www.vimalfire.com

Dealer/Distributor**HSE ENGINEERS PVT LTD**

2, Durgas Niwas, 1st Floor,Bhawani Tower
Compound, Behind Bhawani Petrol Pump
IIT Powai, Mumbai 400076, India
Contact: Mrs Sapna Prajapati
Tel: +91 22 2578 7014 / 7015
Fax: +91 22 2578 7016
Email: hsemumbai@hseengineers.com
Website: www.hseengineers.com

Dealer/Distributor**KOREA (SOUTH)****ROYAL INDUSTRIAL TECHNOLOGY
CORPORATION**

Royal Building, 3rd Floor, 840-5 Yeoksam-Dong
Kangnam-Ku, Seoul 135080, Korea
Contact: Mr E.S. Kim/Mr J.K. Chung
Tel: +82 22 009 1800
Fax: +82 2 567 8831
Email: kes@ritco.co.kr/jkchung@ritco.co.kr
Website: www.ritco.co.kr

Dealer/Distributor**MALAYSIA****FITTERS SDN BHD**

No, 1 Jalan Tembaga SD5/2
Sri Damansara
52200 Kuala Lumpur
Contact: Dato' Richard Wong
Tel: +60 3 6276 7155
Fax: +60 3 6175 2780
Email: eugene@fittersgroup.com
Website: www.fittersgroup.com

Dealer/Distributor**SYARIKAT LETRIK CHEN GUAN SDN BHD**

Lot 1178 Jalan Subang 3
Taman Industri Sg.
Penaga, 47610 Subang Jaya
Selangor
Malaysia
Contact: Mr Choong Yew Lim
Tel: +603 5634 1436
Fax: +603 5634 2349
Email: chenguan@streamyx.com

Dealer/Distributor**PAKISTAN****EVERGREEN DEVELOPMENT
CORPORATION**

Suite # 514, 5th Floor, Clifton Centre
Block 5 Kehkashan, Clifton
Karachi 75600, Pakistan
Contact: Mr Munawar Afridi
Tel: +92 21 5873 448
Fax: +92 21 5870 080
Email: genco@cyber.net.pk
Website: www.edcpl.com

Dealer/Distributor**SINGAPORE****SWISS SECURITAS ASIA PTE LTD**

56 Serangoon North Ave 4, #06-03
Singapore 555851
Contact: Mr Andy Gan/Mr Michael Boon
Tel: +65 6853 8066
Fax: +65 6853 5939
Email: mike.boon@securitas.sg
Website: www.securitas.sg

Dealer/Distributor**TAIWAN****ATLAS TECHNOLOGY CORPORATION**

22F, No 1 Bausheng Road, Yunghe City
Taipei, Taiwan 234, R.O.C.
Contact: Mr David Liu
Tel: +886 2 223 20 556
Fax: +886 2 223 16 657
Email: david@atlasgroup.com.tw/
hunter@atlasgroup.com.tw
Website: www.atlasgroup.com.tw

Dealer/Distributor

KGIC TECHNOLOGY CO LTD

No. 49 Goang Shi Road
Kaohsiung 806, Taiwan R.O.C.
Contact: Mr Franco Lee
Tel: +886 7 715 4285 Fax: +886 7 715 4401
Email: lic@ms9.hinet.net
Website: www.gictec.com.tw

Dealer/Distributor**UNIVERSAL PATHS DEVELOPMENT CORPORATION (UPDC)**

9F-1, 306, Sec. 1, NeiHu Road
Taipei 114, Taiwan R.O.C.
Contact: Mr Terry Chung/Ms Ellie Chou
Tel: +886 2 8751 6055 Fax: +886 2 8751 6053
Email: ellie@updc.com.tw
Website: www.updc.com.tw

Dealer/Distributor**SOLBERG SCANDINAVIAN AS****AUSTRALIA****SOLBERG ASIA PACIFIC PTY LTD**

P.O. Box 182, Kingswood NSW 2747, Australia
Contact: Ted Schaefer
Technical Manager
Tel: 61 2 9673 5300
Email: ted@solbergfoams.com
Website: www.solbergfoams.com

Representative Office**MALAYSIA****RHINOSHIELD INDUSTRIES(M) SDN BHD**

H-0-5 Ground Floor Plaza Damas
No. 60 Jalan Sri Hartamas 1, Sri Hartamas
50480 Kuala Lumpur, Malaysia
Contact: C. K. Lim
General Manager
Tel: +603 62033850 Fax: +603 62032245
Email: rhinoshield@pd.jaring.my

Dealer/Distributor**TASK FORCE TIPS INC****AUSTRALIA****GAAM EMERGENCY PRODUCTS**

29 Temple Dr., P.O. Box 211
Thomastown, Victoria 3074, Australia
Tel: +61 3 9466 1244 Fax: 61 3 9466 4743
Email: iprice@tycoint.com
Website: www.gaam.com.au

Dealer/Distributor**CHINA****SHANGHAI JINDE INDUSTRY DEVELOPMENT CO LTD**

Room 610, 1 Lane 50
Xin Cun Road, Shanghai, 200065, China
Tel: +86 21-360-50599 Fax: +86 21-360-55599
Email: jmgushon@online.sh.cn

Dealer/Distributor**HONG KONG****ROTTER INTERNATIONAL LIMITED**

Unit A G/F, Hung To Road, 6-8 Hung To Road
Kowloon, Hong Kong
Tel: 85227517770 Fax: 85227562051
Email: jacky@rotter.com.hk

Dealer/Distributor**INDIA****FOREMOST TECHNICO PVT LIMITED**

M-1, Green Park Extension
New Delhi 110016, India
Tel: +91 (11) 2619 6982
Fax: +91 (11) 2616 6961
Email: foremost@hathway.com
Website: www.foremost-india.com

Dealer/Distributor**INDONESIA****PT PALMAS ENTRACO**

Jl. Krekot 85, Jakarta-Pusat, Indonesia
Tel: +62 (21) 384 1681
Fax: +62 (21) 380 2660
Email: ptpalmas@attglobal.net

Dealer/Distributor**JAPAN****YONE CORPORATION**

23, Nishinakaai-Cho, Nishinokyo
Nakagyo-Ku, Kyoto 604, Japan
Tel: +81 (7) 582-11185
Fax: +81 (7) 580-12263
Email: t.yone@myad.jp
Website: www.yone-co.co.jp

Dealer/Distributor**KOREA (SOUTH)****SHILLA FIRE CO LTD**

433-11 Non Hon-Dong
Nam Dong-Gu, Incheon City 405-300
South Korea
Tel: +82-02-3665 9011
Fax: +82-02-3663 9113
Email: kofire77@hotmail.com
Website: www.firekorea.com

Dealer/Distributor**MALAYSIA****SENTRIX TECHNOLOGY SDN BHD**

No. 2A-2, 1st Floor Jalan USJ 21/7
UEP Subang Jaya, 47630 Subang Jaya
Selangor Darul Ehsan, Malaysia
Tel: +603 8023-5228
Fax: +603 8023-5618
Email: chong@sentrrix.com.my
Website: www.sentrrix.com

Dealer/Distributor**PAKISTAN****FIRESTOP PVT LIMITED**

6/B, 1st Floor, Dinar Chambers
P.O. Box # 5786, West Wharf Road
Karachi-74000, Pakistan
Tel: 9221-2315675, 2313065
Fax: 9221-2310457, 5831015
Email: info@firestopaids.com
Website: www.firestopaids.com

Dealer/Distributor**PHILIPPINES****ALLIANCE INDUSTRIAL SALES**

Unit 4, Finlandia Town Homes
1700 Dian, cor. Finlandia Street
Brgy, San Isidro, 1234 Makati City
Philippines
Tel: +63 21 7546 1749
Fax: +63 2 887 7173
Email: alliance8_jcy@pacific.net.ph

Dealer/Distributor**SINGAPORE****S.K. FIRE PTE LTD**

8 Tuas Drive 2
Singapore 638643, Singapore
Tel: +65 6862 3155
Fax: +65 6862 0273
Email: houchin@skfire.com
Website: www.skfire.com

Dealer/Distributor**TAIWAN****YONE CORPORATION**

23, Nishinakaai-Cho, Nishinokyo
Nakagyo-Ku, Kyoto 604, Japan
Tel: +81 (7) 582-11185
Fax: +81 (7) 580-12263
Email: t.yone@myad.jp
Website: www.yone-co.co.jp

Dealer/Distributor**THAILAND****ANTI-FIRE, CO LTD**

316-316/1, Sukhumvit 22 Rd
Klongtoey Klongtoey, Bangkok
10110 Thailand
Tel: 6622596898
Fax: 6622582422
Email: sithichai@antifire.com
Website: www.antifire.com

Dealer/Distributor**TYCO FIRE SUPPRESSION & BUILDING PRODUCTS****SINGAPORE****TYCO FIRE SUPPRESSION & BUILDING PRODUCTS**

2 Serangoon North Avenue 5
#07-01 Fu Yu Building
Singapore 554911, Singapore
Contact: Derek Addison
Mobile: (+66) 81 813 4601
Fax: (+65) 6481 8719
Email: Derek.Addison@tycofp.com

Representative Office**HYGOOD**

2 Serangoon North Avenue 5
#07-01 Fu Yu Building
Singapore 554911, Singapore
Contact: Derek Addison
Mobile: (+66) 81 813 4601
Fax: (+65) 6481 8719
Email: Derek.Addison@tycofp.com

Representative Office**PYRO-CHEM**

2 Serangoon North Avenue 5
#07-01 Fu Yu Building
Singapore 554911, Singapore
Contact: Derek Addison
Mobile: (+66) 81 813 4601
Fax: (+65) 6481 8719
Email: Derek.Addison@tycofp.com

Representative Office**SKUM**

2 Serangoon North Avenue 5
#07-01 Fu Yu Building
Singapore 554911, Singapore
Contact: Derek Addison
Mobile: (+66) 81 813 4601
Fax: (+65) 6481 8719
Email: Derek.Addison@tycofp.com

Representative Office**SABO FOAM**

2 Serangoon North Avenue 5
#07-01 Fu Yu Building
Singapore 554911, Singapore
Contact: Derek Addison
Mobile: (+66) 81 813 4601
Fax: (+65) 6481 8719
Email: Derek.Addison@tycofp.com

Representative Office**YONE CORPORATION****JAPAN**

23 Nishi Nakaaicho
Nishinokyo, Nakagyo-ku
Kyoto 604 8441, Japan
Tel: +81 (0) 75 821 115
Fax: +81 (0) 75 801 2263
Website: www.yone-co.jp

Representative Office

SUBSCRIPTIONS

ASIA PACIFIC FIRE MAGAZINE

GET YOUR SUBSCRIPTION NOW!!!



**APF IS PUBLISHED 4 TIMES A YEAR
– MARCH, JUNE, SEPTEMBER
AND DECEMBER**

Name: _____

Company/Organisation: _____

Address: _____

Telephone: _____

Fax: _____

E-mail: _____

Start Subscription from Issue: _____

Subscription Rates: Sterling £50.00 AUS Dollars – \$100.00
US Dollars – \$70.00

Back Issues: US \$8.00 or £5.00 each inclusive of P&P
(subject to availability)

METHODS OF PAYMENT:

Website Subscription: www.mdmpublishing.com

Cheque: _____ MDM Publishing Ltd.

Visa/Mastercard No: _____

Expiry Date: _____ Security Code: _____
(last three digits on reverse of card)

If paying by credit card please fax details. DO NOT post/mail.
Fax: +44 (0) 1935 426926

MDM Publishing Ltd.

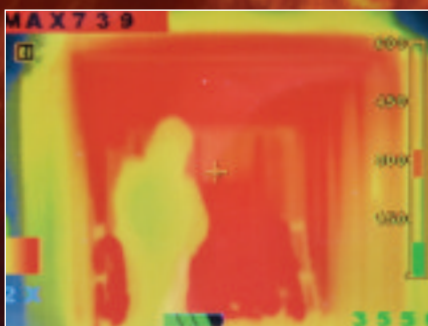
The Abbey Manor Business Centre, The Abbey, Preston Road,
Yeovil, Somerset BA20 2EN, United Kingdom

ADVERTISERS' INDEX

Argon Electronics LLP	56
Black Diamond Group Inc	55
Blucher GmbH	52
Bio-Ex	29
Bristol Uniforms Ltd.	57
Chemguard Inc	OBC
Control Logic s.r.l.	04
Dafo Fomtec	34
Draeger Safety Asia Pte Ltd.	48
Dr. Sthamer Hamburg	27
Dynax Corporation	24
e2v Technologies	63
Fike Corporation	18
Fire Fighting Enterprises	21
Firetrace International	30
GB Solo Ltd	45
Gielle Srl	23
Groupe-Leader France	47
Holmatro Rescue Equipment	52
Janus Fire Systems	21
Lancier Hydraulik Co. KG	47
NFPA	61
Orchidee France SAS	29
Permalight (Asia) Co Ltd	44
Plastika Akrapovic	58
Scott Health & Safety	IBC
Securiton AG	63
Solberg Asia Pacific Pty. Ltd.	26
Task Force Tips, Inc.	IFC
Texas A & M Emergency Services Training Institute	42
Tyco Fire Suppression & Building Products – Asia Pacific	13
Unifire Power Blowers	51
W.S. Darley Inc	37
Yone Corporation	42
Ziamatic Corporation	17

Don't get left in the dark

See the light



The new Eagle 320 Thermal Imaging Camera features a large 10 cm screen with up to 4 x zoom and a variety of temperature indicators to ensure you have the information you need

- Maximum Temperature Indicator
- Large LCD Display with 4x Zoom
- Over 4.5 hour Battery Life
- Ergonomic Multi Positioned Handle

EAGLE™ 320

For further information call Customer Services on: +44 (0) 1695 711711
quoting reference FT0309 or email scott.sales.uk@tycoint.com



SCOTT®
HEALTH & SAFETY

www.scotthealthsafety.com

PROBLEM SOLVED!

FROM FLUORINE-FREE FOAM TO SHORT-CHAIN FLUROSURFACTANTS
CHEMGUARD HAS YOUR SOLUTION!

ECOGUARD®

THE FIRST AND ONLY!
FLUORINE-FREE, UL LISTED FOAM
FOR MULTIPLE APPLICATIONS
INCLUDING SPRINKLERS!



CHEMGUARD®

PROVIDING A FULL RANGE OF INNOVATIVE
SHORT-CHAIN FLUROSURFACTANTS AND
POLYMER-BASED TECHNOLOGIES TO FOAM
MANUFACTURERS WORLDWIDE.



CHEMGUARD - 204 South 6th Avenue, Mansfield, Texas USA 76063
OFFICE: 817.473.9964 FAX: 817.473.0606 www.chemguard.com

ON CALL 24/7:
800.222.3710

APF

An MDM PUBLICATION
Issue 31 - September 2009

www.mdmpublishing.com

ASIA PACIFIC FIRE MAGAZINE

REPORTING TO THE ASIA PACIFIC FIRE PROTECTION AND FIRE SERVICE INDUSTRY

TASK FORCE TIPS, INC.



3701 Innovation Way, Valparaiso, IN 46383-9327 USA
International +1.219.548.4000 • www.tft.com • intsales@tft.com



AUTOMATIC NOZZLES WITH STAINLESS STEEL SPINNING TEETH

Mid-Range 260 - 760 l/min



Standard 7 bar Setting



Low Pressure Setting

For excellent quality fire fighting equipment visit www.tft.com and call your local distributor for a demonstration.

Remote Controlled and Manual Monitors



ATEX Version Available 
4500 l/min
Hurricane Remote Controlled
and Manual Monitor



ATEX Version Available 
6000 l/min
Typhoon Remote Controlled
and Manual Monitor



ATEX Version Available 
8000 l/min
Monsoon Remote Controlled
and Manual Monitor



AUSTRALIA

Gaam Emergency Products-AU
Phone : 61394661244
Fax : 61394664743
iprice@tycoint.com
www.gaam.com.au



INDIA

Foremost Technico Pvt Ltd
Phone: +91 (11) 2619 6982
Fax: +91 (11) 2616 6961
foremost@hathway.com
www.foremost-india.com



MALAYSIA

Sentrix Technology Sdn Bhd
Phone: +603 8023-5228
Fax: +603 8023-5618
chong@sentrix.com.my
www.sentrix.com.my



SINGAPORE

S.K. Fire Pte. Ltd.
Phone: 6568623155
Fax : 6568620273
houchin@skfire.com
www.skfire.com



CHINA

Shanghai Jin De Industry
Phone: 862136050599
Fax: 862136055599
sjinde@163.com
www.sjinde.com



INDONESIA

Pt Palmas Entraco
Phone: 6221384 1681
Fax: 6221380 2660
sales@palmas.co.id



NEW ZEALAND

Tyco Safety Products
Phone: 6445608127
Fax: 6498270844
tsp.sales.nz@tycoint.com
www.tycoservices.co.nz



SOUTH KOREA

Shilla Fire Co., Ltd.
Phone: 820236659011
Fax: 820236639113
kofire77@hotmail.com
www.firekorea.com



HONG KONG

Rotter International Ltd.
Phone: 85227517770
Fax: 85227562051
jacky@rotter.com.hk
www.rotterbiz.com



JAPAN / TAIWAN

Yone Corporation
Phone: 81758211185
Fax: 81758012263
t.yone@myad.jp
www.yone-co.co.jp



PHILIPPINES

Alliance Industrial Sales
Phone: 6328908818
Fax: 6328960083
alliance8_jcy@pacific.net.ph



THAILAND

Anti-fire Co., Ltd.
Phone: 66 2 259-6898
Fax: 66 2 258-2422
sithichai@antifire.com
www.antifire.com

www.tft.com

September 2009 Issue 31



Front Cover Picture: CAFSCO Fire Service bleeding off Chemguard EXTREME Class A compressed foam from a bore hole used to extinguish a deep coal mine fire. Chemguard strengthened the foam formula so it could be used to displace all the toxic gasses after the fire was extinguished

Publishers

Mark Seton & David Staddon

Editorial Contributors

Mark Cummins, Lisa LaFosse, Brendan MacGrath, Simon McNamara, Michael C. Ruthy, Nick Grant, Michael Mills, Brad Penney, Robert Kirkland, John Ng

APF is published quarterly by:
MDM Publishing Ltd
The Abbey Manor Business Centre,
The Abbey, Preston Road, Yeovil,
Somerset BA20 2EN, United Kingdom
Tel: +44 (0) 1935 426 428
Fax: +44 (0) 1935 426 926
Email: mark.seton@apfmag.com
Website: www.mdmpublishing.com

©All rights reserved

Subscription Rates
Sterling – £50.00
AUS Dollars – \$100.00
US Dollars – \$70.00
(Prices include Postage and Packing)
ISSN – 1476-1386

DISCLAIMER:

The views and opinions expressed in ASIA PACIFIC FIRE MAGAZINE are not necessarily those of MDM Publishing Ltd. The magazine and publishers are in no way responsible or legally liable for any errors or anomalies made within the editorial by our authors. All articles are protected by copyright and written permission must be sought from the publishers for reprinting or any form of duplication of any of the magazines content. Any queries should be addressed in writing to the publishers.

Reprints of articles are available on request. Prices on application to the Publishers.

Page design by Dorchester
Typesetting Group Ltd
Printed in Singapore

Contents



23-28

03 NFPA Foreword

05-20 News &
Product Profiles

23-28 Using CAFS
to Control and
Extinguish Coal Mine
Fires



49-52

31-36 Flammable
Liquids – An Overview
of Some Basic
Protection Principles

39-42 Mass
Decontamination

45-46 Truck
Specifications around
the World – With an
Interview with Peter
Darley



55-60

49-52 Vehicle Fires
– Stopping them in
their Tracks

55-60 Fire Fighting
Monitors

63-66 Today's
Flashlights Built for
Performance and
Safety



63-66

69-71 The Case for
Supplemental
Evacuation

72-79 Distributor &
Representative Office
Listing



69-71

80 Advertisers' Index



31-36



39-42



45-46

MEMBERSHIP



Up-To-Date? It's Up to You!

NFPA® membership is indispensable for more than 81,000 professionals worldwide. What about you? It's an easy decision for anyone involved with protecting people and property, because NFPA keeps members on top of breakthroughs, research, and technology...and in control of their careers. **Join now and SAVE 10%** on NFPA codes, products, and seminars, while **you stay up-to-date** with:

- **NFPA Journal®**, the award-winning bimonthly membership magazine loaded with articles, codes and standards information, investigations, case studies, and reports
- Answers to your code questions from NFPA's experienced fire protection specialists
- Online issues of **NFPA News** for codes and standards activities, and **NFPA Update** for training opportunities and events
- FREE membership in any of 16 industry-specific sections including Fire Service; Building Fire Safety Systems; Health Care; Electrical; and Architects, Engineers, and Building Officials
- The latest **NFPA Journal Buyers' Guide**—your bonus gift valued at \$40

Gain a decided advantage on the job. Join NFPA today!

Become part of the world's largest organization for fire, electrical, and building safety professionals and stay up-to-date for only \$150 annual dues—satisfaction guaranteed.

**To join call 1-617-770-3000, or visit
nfpacatalog.org.**



**By James
M Shannon**

NFPA President & CEO

Foreword

Fire Safety and the Future

If we have learned nothing else in recent months from the economic turmoil facing the world, we have at least learned how difficult it is to predict the future. A look at stock market predictions, oil price forecasts, and economic prognostications by experts from a few months ago is humbling for anyone who thinks he has a grasp on what the economy is going to do next.

The uncertainties we face are no excuse for ignoring what is changing around us or for failing to plan for the consequences of those changes. In considering the fire safety problem and its future, the cost of paying too little attention to shifts that are already happening could be exorbitantly high in human life and property losses.

As I write, California has just experienced devastating wildfires around Los Angeles. The West has always had a problem with wildfires, but the problem is getting bigger, and we think we know why. Global warming has given us a string of some of the hottest years ever recorded, and the earlier snowmelts these temperatures cause have exacerbated the conditions that result in wildfires.

This problem is getting much worse. Over the last 30 years, there has been a 400 percent increase in wildfires, which represents a 700 percent increase in the area burned. Because of the excessively dry conditions, the fires get out of control much more quickly than they used to. California isn't alone; this is a worldwide phenomenon. Huge wildfires have occurred recently in Siberia, Southern Europe, China, Australia, and many other countries.

We need to take note of what is clearly happening and start thinking about the implications for fire safety. We need to begin aggressively making the case for the additional resources, sounder policy planning, and new technological approaches that will keep this problem from becoming a catastrophe in the decades ahead. If we ignore the facts, we leave a huge problem for others to handle down the road.

We are in the midst of another tectonic shift that promises to have an equally large impact on fire protection. This one is demographic. The

world population is aging quickly. In 2000, the number of people in the world aged 60 or older was estimated to be 605 million. That number is projected to grow to almost 2 billion by 2050, when the population of older persons will be greater than the population of children aged 14 and under for the first time in human history.

There can be no doubt that such an enormous explosion in the number of aged people, which in so many respects is good news, will bring with it a whole new set of concerns for the economy, for health care, and for fire and life safety. With millions more old people, the safety problems we will face will be far more complicated than they are today. If we are serious about being a community of professionals that drives the changes that will make the world safer, we cannot ignore the inexorable graying of the world's population. We will only achieve a safer tomorrow if we plan for it today.

Recently, as part of its 25th anniversary celebration, the Fire Protection Research Foundation held a two-day symposium in Washington, D.C. The event, "Fire Protection and Safety: Preparing for the Next 25 Years," brought together leaders in fire protection from across North America to discuss what the key fire protection issues are likely to be over the next quarter century. With the changes we know we will see in the coming years, events like the symposium are more important than ever.

It is encouraging that many of the key individuals and groups concerned with fire and life safety take seriously their responsibility to plan for the future.

This column originally appeared in NFPA Journal®, January/February 2009 and was reprinted with permission.



MDM Publishing
WORLDWIDE MEDIA

www.mdmpublishing.com

Hi-Tech Portal Site

FEATURING

FULL VIRTUAL ARCHIVE OF BACK ISSUES

LIVE REAL PAGE TURNING SOFTWARE

VIRTUAL ELECTRONIC MAGAZINES

FULL PDF FILE DOWNLOADS

BANNER ADVERTISEMENTS

EVENTS PAGE, LIVE LINKS

AND MUCH, MUCH MORE . . .

**SIMPLY NO
COMPARISON**

MDM Publishing Ltd, The Abbey Manor Business Centre,
The Abbey, Preston Road, Yeovil, Somerset BA20 2EN, UK
Tel: +44 (0) 1935 426 428 Fax: +44 (0) 1935 426 926

www.mdmpublishing.com

B-SAFE : The new security fill station from BAUER protects against accidents during breathing air cylinder filling

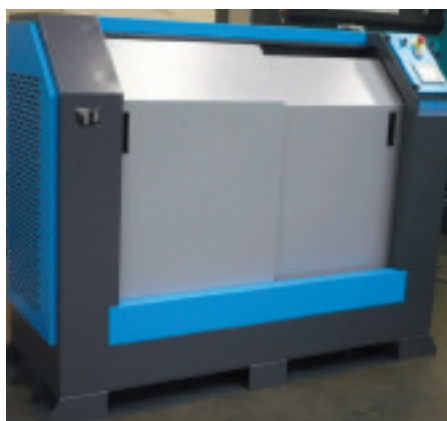
The B-SAFE from BAUER Compressors

"The sword of Damocles" of exploding cylinders hovers permanently over the head of owners and operators of Breathing Air filling stations. In spite of cylinders tests an element of risk remains, as filling accidents in Europe have shown.

France and Spain have already reacted to accidents due to exploding cylinders by prescribing protected compressor rooms "by law". It is foreseeable that comprehensive European rules will follow soon. But even without any legal regulations, prosecution services will immediately be on the spot in case of an accident.

This residual risk can only be excluded either by using very expensive, efficiently insulated compressor rooms, or now, a considerably less expensive secure, up-to date fill station, from Bauer Compressors called B-SAFE.

B-SAFE from BAUER protects against any



damage to persons and to property in the event of an exploding cylinder. When a cylinder explodes, the massive steel housing adsorbs the enormous released energy. Owing to its compact form, it is ideally suited for use in filling stations. Up to six breathing air cylinders with the filling pressure of up to 330 barg can be filled, simultaneously.

Product efficiency:

- Already existing fill panels from BAUER can be incorporated into the housing interior and thus continue to be used.
- The plant's safety concept provides efficient protection against operating errors.
- The filling process can only be started after the guard door had been completely closed and locked.
- Due to the compact size (1750mm x 600 x 1500mm) and light weight (approximately 350 kg), B-Safe is very suitable for location in mobile applications, such as, in fire trucks and containerised systems.

Contact :

Bauer Compressors Asia Pte Ltd
Mr. Stephen Hines, Managing Director
2 Penjuru Place
#01-05
Penjuru Tech Hub
Singapore 608783
Tel: +65 6271 6271
Fax: +65 6272 3345
Email: info@bauer-compressors.com.sg

Fike Introduces Fire Alarm Event Management Systems

FIKE ALARM SYSTEMS is proud to announce the release of its newest products, the Precise Vision™ and Precise Touch™ computer-based event management systems.

Created to help control and monitor facilities during emergency situations, Precise Vision allows facility managers and/or key personnel the ability to respond to alarm and trouble situations with just a few easy clicks – gaining access to building floor plans, emergency contacts, and security plans. In addition, Precise Vision has the capability to inform appropriate personnel via email about alarm situations.

Precise Touch is an intuitive computer graphics package designed for use in public locations so that responders can quickly locate an alarm situation, view floor plans, identify potential hazards and find emergency exit routes. This intelligent device is also powered with knowledge to locate where a fire started, how it is progressing and what potential hazards may exist, so personnel can quickly locate the nearest exit route.

"These event management packages interface with Fike fire alarm technology, giving users detailed, visual information on exactly what is happening within their facility, so the safest and most efficient action can be taken for the situation," said Kevin Montgomery, Market Manager. "Both of these products are easy to operate and provide intuitive information for facility managers and/or personnel to respond quickly."

Precise Vision and Precise Touch were specially designed to work with the Fike CyberCat® fire alarm control panels and can be customized and adapted to meet changing needs of a facility.

Fike is a globally recognized supplier of products and services that protect people and critical assets from dangers such as fire, explosion, and over-pressurization. With over 60 years experience manufacturing safety solutions, Fike offers a complete line of proven, reliable products to customers around the world.

Contact: Kevin Montgomery, Market Manager
Tel. 816-229-3405
Email: kevin.montgomery@fike.com Website: www.fike.com

American Company Develops New Robotic High Rise Rescue & Escape System

ADVANCED EVACUATION SOLUTIONS INC., a Florida based company, is developing an all new approach to high rise rescue and evacuation based on Robotic and Automated operation.

This new technology was made possible by recent changes in NFPA Life Safety Codes approving the use of powered systems for "Supplemental Evacuation" in high rise buildings.

The system shown below is called an "Evac-U-Bot" – it is the world's first Robot designed for high rise rescue and evacuation in buildings of any height. The Evac-U-Bot is self-propelled and sets up automatically. Capable of lowering two or more users at a time (up to 230 kg), the Evac-U-Bot can evacuate entire floors in a matter of minutes.

The system can also be used to hoist up to 200 kg of materials or personnel at 1 meter per second. There is a multi-media display screen that guides the user through the operation and a two way communications link that enables people in the building to talk directly to Responders on the ground.

This new technology will soon be available in Asia through the offices of Mr. John Ng, Director Asian Operations.

For more information on the Evac-U-Bot and other innovative rescue and evacuation technology for use in high rises under development by AES please visit our website: www.adevac.com



Ship Halon Phase Out

GIELLETM
www.giellemarine.com

Retrofit with Gielle Clean agent fire
suppression systems

- Utilize existing piping
- 1 to 1 cylinder/nozzle replacement
- Existing Halon Systems / Existing HCFCs Systems
- Express service
- Worldwide 24h service
- Full range of International Approvals

Imo Halon Banking authorized
FP.1/Circ.37 - Jan 2009



Gielle / info@giellemarine.com



Industrial Firewater Hose

WILLIAMS FIRE & HAZARD CONTROL, the world's preeminent Industrial Fire Response company, has also been supplying industry with performance based response equipment for the last 30 years – including nozzles, manual and remote controlled monitors, pumps, foam proportioning systems, big guns, hose, and accessories.

Water is a fundamental component in any fire response, and getting it to the incident scene reliably and with minimal friction loss has been an important aspect to industry's large volume responses. Williams has relied on Niedner's Supplyline hose for our 4", 5", and 6" applications, while working in conjunction with Niedner for the manufacture of our Large Diameter Hose (LDH) Double5 Brand and 12" TAIGA hose to accommodate our large volume delivery systems.

The Double5 Brand moves the same amount of water of two 5" hose lays – while reducing friction loss and handling logistics.

The 12" TAIGA hose is an excellent means of establishing long term water



supply for various industry operations, for firewater supply to Williams Fire & Hazard Control's Big Gun assemblies – including Ranger3 1x3, Ambassador 1x6, Battler 2x10 packages, and for multiple attack scenarios fed by inline large-diameter firewater manifolds.

With strategic response and distribution points all around the globe, Williams Fire & Hazard Control is ready with men and materiel to meet your emergency response needs. Niedner has recognized Williams Fire & Hazard Control as its chosen distributor for Supplyline and all large-diameter hose needs in the Asia/Pacific region.

Contact
Michael Sorensen
Regional Manager
Central and Southeast Asia, Asia Pacific
Tel: +61 (0) 7 5573 2221
Fax: +61 (0) 7 5573 2774
Email: michaels@williamsfire.com
Website: www.williamsfire.com



Underwater Kinetics

– uncompromising performance since 1971

For over a quarter century UNDERWATER KINETICS, better known as UK, has been in the business of designing and manufacturing lights, containers and accessories for use in harsh or difficult environments. Our waterproof lights are the standard for scuba divers, fire fighters, utility workers and health and safety personnel. UK protective dry cases meet rigid standards set by OEMs to protect their products in challenging environments. Many lights meet standards set by testing agencies that include FM, CSA, UL and CENELEC as well as standards set by the NFPA and Military.

Each product is designed and engineered at our facility for maximum performance using high



quality state-of-the-art components. At Underwater Kinetics we engineer advanced features into our products in order to provide the added performance you require. Our products are carefully manufactured in the U.S.A at our facility in California. UK lights are incredibly bright, compact, waterproof, dust proof, non-corroding and electrically non-conductive. They include features such as custom optical quality reflectors, smooth illumination, xenon filled

Darley Sets World Record in China

In early 2009, DARLEY conducted tests pumping CAFS in a building that was 251 meters tall (54 stories) – the tallest building in Dalian, China. On April 28, 2009, the same day as Dalian testing, Darley went one step further by flowing CAFS from the tallest building in Beijing. The World Trade Tower is 74 stories tall, 331 meters in height. Darley pumped CAFS through 3" fire hose with 570 meters deployed up the stairway to the top building.

Under close observation from the Beijing Fire Service and China Fire Service, the Darley LDMBC 1500 AutoCAFS equipped with a 220 cfm air compressor, provided 1 – 2½" discharge line with fully operational CAFS from 3" hose on the top of the building. According to Bo Zhang, General Manager of Darley China in Dalian, "We could have pushed CAFS even higher, but this was the tallest building we have in Beijing."

Shortly after this testing, Darley set up the Beijing Fire Service as an authorized service center for Darley pump and apparatus. Jeff and Peter Darley were in Beijing for the ceremony

Darley introduces CAFS in the Philippines

Darley partner Anos Research Manufacturing in the Philippines build a demonstrator CAFS truck using the Odin Colt and introduced CAFS to the Philippines Fire service at a recent exhibition. The product was launched on May 19, 2009 at Quirino Grandstand, Luneta Park, Metro Manila Philippines with the following in attendance; Metro Manila fire marshals, CAAP (Civil Aviation Authority of the Philippines), Congressmen, Senators, Media, Local Television stations, National Press Club and concerned local government agencies.

According to company General Manager Maria Estrella Anos Garcia, "It worked beautifully and everybody involved in the plant was amazed of this new technology. There will be many more Darley CAFS coming to our country in the near future."

For more information, please contact:
W.S. Darley
Tel: +1 708 345 8050
Website: www.darley.com

lamps, side-by-side battery configurations, engineering grade plastics, and ergonomic shapes. Our watertight cases are made in a wide range of sizes and are available with optional latch and handle styles, custom interiors, special colors and engineering grade plastics.

"Uncompromising performance since 1971" is not just our tag-line, it's our way of life.

For more information, please contact:
Underwater Kinetics
Tel: +1 858 513 9100
Website: www.uwkinetics.com

Search and Rescue Equipment from Groupe-Leader

Audio ResQ – Search and Rescue Equipment:

Audio ResQ is the definitive life locator, for an easy and fast detection and location of trapped victims.

Audio ResQ was developed to allow USAR Teams to go one step further in their search.

The use of up to 6 seismic sensors considerably widens the field of investigation.

Audio ResQ is equipped with a very sensitive microphone which is placed as close as possible to the victims. Priority for communication is given to the victim. A second headset connected to the Audio ResQ allows a translator or a doctor to work with the rescue crew. The control box is equipped with a low noise-output, very high gain adjustment amplifier and the intuitive use of settings for immediate operation of Audio ResQ.



monitors any slight movement of unsteady buildings or potentially dangerous mass structures: floors, walls and facades damaged by earthquake, bombings, gas blast...

Provided with 2 x Ni/Mh batteries, which allow a 16-hour running time, Visio-Stab continuously detects any movement.

Set up on a telescopic tripod, Visio-Stab can detect a 5mm move at a 30metre distance. A telescope helps to precisely point Visio-Stab at the targeted building or unstable structure.

When occurring, the movement will activate an audible alarm.

For more information, please contact:

Groupe-Leader

Tel: +33 (0) 2 3553 0575

Website: www.groupe-leader.com

Visiosearch – Search and Rescue Equipment:

Visiosearch is the life locator for visual location of buried victims. In addition to being used by Search and Rescue responses, Visiosearch also successfully provides clear and correct images for maintenance operations in industry and construction, customs inspection, police investigation.

Visiosearch is equipped with:

- A wide and high resolution display with the report of the camera position
- A coloured camera, outside diameter 47mm, adjustable illumination level to see up to 6m distance in dark conditions, an unscratchable sapphire front lens
- A camera rotation for a 270° total area viewed.
- A high sensitivity speaker and microphone integrated into the camera housing.
- An ultra lightweight telescopic probe, extremely resilient carbon fibre made with a total length of 2.4m unfolded.
- A stereo headset with microphone. Two headsets can be connected on the two sockets.
- Rechargeable battery pack with a running time of 4.5 hours.

Visio-Stab Controller – Search and Rescue Equipment:

The Visio-Stab Controller alerts Search & Rescue teams engaged in operation. A harmless laser

PROEYE 951-SX Life Detector

Four days after the Niigata Chuetsu Earthquake that occurred in October 2004, the rescue squads of Nagaoka City, Niigata Prefecture, and the Tokyo Fire Department rescued a two-year-old boy and his mother (who was confirmed dead after transfer to a hospital) at the site of the car fall accident due to the landslide caused by the Earthquake.

During the rescue operation, the decisive factor for confirmation of the life of the victims by the rescue squads was the beating of the heart and body temperature of the victims. After that, people began to feel the necessity of a search instrument that would correctly measure the accurate body temperature of victims, besides the conventional search instruments that use images and voice when an earthquake or some other disaster occurs. Upon receipt of the request for development of such an instrument from the rescue squads actually engaged in the rescue operations on the spot, YONE CORPORATION started the development of a search instrument immediately.

From a medical point of view, the body temperature of a human and the condition of life have the following relations:

- 1 36.6°C (97.9°F) Basal body temperature of a healthy person
- 2 35.5°C (95.9°F) Low body temperature. The metabolic function is inactive.
- 3 34.0°C (93.2°F) Great Divide. Used to judge the possibility of recovery after rescue.
- 4 33.0°C (91.4°F) Gate of death. The victim will have hallucinations.

Based on the above, the life and the condition of health of a victim can be confirmed.

During the development, it was decided that

a temperature sensor should be installed in the camera head of Model 951-S, which has been most widely used in the PROEYE Multi-Purpose Video & Audio Search CAMERA Series of YONE Corporation.

As a result, we succeeded in installing a color image sensor, audio sensor, and non-contact infrared thermometer in a 35 mm x 43 mm housing in the camera head, putting the PROEYE 951-SX Life Detector on the market.

The actual research operation with 951-SX is as follows:

After confirmation of a victim through the image captured by the camera head, the camera head is brought to a position approx. 50 to 200 cm from the skin of the victim, and the correct body temperature of the victim will be shown on the remote display.

In fact, the body temperature of a human changes slightly according to the ambient temperature.

Especially when the ambient temperature is low, the surface temperature of the skin of a rescue squad is measured in advance.

Based on that temperature, the actually measured body temperature of the victim is corrected to find the more correct body temperature.

The Life Detector is highly expected to offer information about the life of victims quickly and easily at the site of an earthquake and some other disaster.

For more information, please contact:

YONE Corporation

Tel: +81 75 821 1185

Website: www.yone-co.co.jp

Correction

In the June issue, the product profile article "Raising the Bar for Vehicle Fire Suppression System" wrongly stated the Australian approved standard as 'AS 5026'. It should be 'AS 5062'. The error is regretted.

One Saw That Can Cut All Materials!

This is a very bold statement but the CUTTERS EDGE® CE735R MULTI-CUT® Rotary Rescue Saw with our Vacuum Brazed Diamond Blades can cut virtually any material!

CUTTERS EDGE has been manufacturing dedicated Fire Rescue Saws since 1984. The only market we manufacture for is the Fire Rescue market. Unlike all competitors, our saws are not construction, demolition or logging saws with fire rescue labels added to them. CUTTERS EDGE Fire Rescue Saws are engineered and built from the ground up, to work specifically in the conditions encountered at Fire and Rescue Incidents.

CUTTERS EDGE dedicates itself to manufacturing saws and cutting implements only. We manufacture 3 models of saws, 2 Cutting Disc models and 2 types of cutting chain: Carbide-Tipped BULLET® Chain and GCP SealPro® Diamond Chain. All our research and development and all of our energy is devoted to fire and rescue cutting only. We do this one thing and do it better than anyone else.

The CE735 MULTI-CUT® Rotary Rescue Saw...sometimes called a "Cut-Off Saw", "Chop Saw", "Circular Saw", "Disc Cutter" or "Power Cutter", is a single-cylinder, 2-cycle petrol (gasoline) engine, driving a 12"(305mm) or 14"(355.6mm) Vacuum Brazed Diamond Cutting Disc (Blade). The unique Transmission Gear Ratios engineered on our saws (2.87:1 on the 14") and (2.50:1- on the 12") work together with a HEMI-HEAD Piston, Air Entrainment Pressurization and Compensating Carburetor that combine to deliver a greater mechanical advantage and more power throughout the entire RPM range. This produces more cutting power and delivers it directly to the material being cut.

Vacuum Brazing the Cutting Diamonds to the substrate (Disc Body) rather than the typical "electroplating", exposes 30% More Diamond Cutting Surface on our BLACK STAR™ and BLACK LIGHTNING™ Diamond Cutting Discs. This means they Cut Faster, Last Longer and Will Cut Any Material. The Vertical Gullet Design allows the Discs to cut in either direction and the Vacuum Brazed Diamonds can cut wet or dry so you do not need to change the Disc to cut different materials. You cannot put the Disc on backwards and you can cut any material dry or add water to eliminate



the production of dust when cutting materials like concrete, plaster or stucco. Both Diamond Discs fit all brands of Rotary Saws and a 16-inch (406.4mm) Disc is made for larger engine displacement saws.

The CUTTERS EDGE® CE735R MULTI-CUT® Rotary Rescue Saw is also available in a Field Kit that includes an Aluminum Storage Case with all accessories, tools and spare parts to get the job done at any emergency.

The CUTTERS EDGE® CE735R MULTI-CUT® Rotary Rescue Saw Has All The Features Needed for High Performance Fire Rescue Cutting:

- A Spring-Loaded Stainless Steel Disc Guard for the highest level of operator safety and it automatically adjusts in the cut.
- Rubber Coated Top Handle
- Sealed Multi-Stage Air Filter with 250 Square inch Surface Area
- Tool Less Air Filter Entry
- Self Compensating Carburetor for continuous Full Power in any conditions
- BIG GRIP™ Easy- Pull Starting Handle
- Full 7-Point Anti-Vibration System
- Stable Base Support
- Decompression Valve for Easy Starting
- HEMI-HEAD Piston creates more complete burn for more power
- Priming Bulb for Faster Starting
- Easy Side-Access Bearing Lubrication
- Reversible Cutting Arm
- Heavy-Duty Sealed Multi-Ribbed Belt for Constant Grip and Reduced Slippage
- Convenient Belt Tensioning System with External Adjustment Indicator

APF

For more information or a demonstration of the MULTI-CUT Rotary Rescue Saw, please contact:
CUTTERS EDGE
 Tel: +1 (541) 524-9999
 Email: info@cuttersedge.com
 Visit: www.cuttersedge.com

Eclipse™ Thermal Imager Gives Firefighters More Eyes on the Fire

BULLARD is the first to offer firefighters a low-cost, personal-issue thermal imager

The Bullard Eclipse is the fire service industry's first low-cost, lightweight, ultra-small, personal-issue thermal imager for every firefighter. Designed by the leading thermal imaging manufacturer in the fire service market, the Bullard Eclipse provides each firefighter with a personal-issue thermal imager to safely navigate a fire.

The concept of multiple thermal imagers on the scene of a fire is not necessarily new. What is new is having multiple thermal imagers with the same firefighting crew. Putting more thermal imagers into the hands of trained and capable firefighters can dramatically improve the efficiency of fighting fires. "We are creating a new concept for thermal imagers and that concept is one thermal imager for every firefighter," said Brad Harvey, Bullard thermal imaging product manager. "We have designed a personal-issue thermal imager that helps increase firefighter safety."

Equipping each firefighter with a thermal imager increases the speed which a crew can



travel through a fire, improves accuracy, and reduces errors in image interpretation. The innovative technology of the Eclipse makes it a perfect navigational, personal-issue thermal imager for firefighters. Weighing, 680 grams the Eclipse is ergonomically shaped to fit in the palm of a firefighter's hand. Its small and lightweight frame can be clipped to a firefighter's gear, instantly providing firefighters with a navigational thermal imaging tool at

their fingertips.

Ideally, the Eclipse should be used in support of an advanced Bullard Thermal Imager.

One firefighter with an advanced thermal imager for analysis along with a team of firefighters using Eclipse thermal imagers means every firefighter now has sight. Equipping each firefighter with a thermal imager means firefighters now have more "eyes" in a fire, lessening the likelihood that a firefighter will become disoriented, trapped or lost.

With more "eyes" in a fire, firefighters have more opportunities to spot various hazards and dangers, such as increasing heat levels, structural weaknesses in the floor or ceilings, hanging electrical lines, stairs or skylights, fallen furniture and other household items. In addition, if an imager is dropped or lost, firefighters can rely on the other imagers to navigate the fire.

For more information on the Bullard Eclipse, visit www.bullardeclipse.com. To learn more about Bullard's complete line of thermal imagers for the fire service, email our Regional Office in Singapore at bullardasia@bullard.com or call us on (65) 6745-0556

Det-Tronics, Releases Versatile Display/Communicator for Gas Detectors

FlexVu® Universal Display reduces spares inventory and simplifies operation

The FlexVu® Universal Display, from DETECTOR ELECTRONICS CORPORATION (DET-TRONICS), is a life-safety display/communicator that provides non-intrusive calibration, local event logging, and third-party performance certifications (<http://flexvu.det-tronics.com>). This display/communicator reduces spare-parts inventory by working with a wide spectrum of toxic and combustible gas sensors and by operating with industrial communication protocols such as HART® and Modbus.

Because the FlexVu Universal Display provides non-intrusive magnetic calibration and configuration, a single person working alone can calibrate gas detectors without declassifying a hazardous area. In addition, the FlexVu display has been third-party performance tested and certified to FM, CSA, and ATEX/IEC. Its reliable construction has an explosion-proof rating and is approved for use in Class I,

Division 1, Groups A, B, C, and D classified hazardous areas for all gas types.

"The FlexVu intuitive menu structure simplifies operation by enabling quick device set up and easy access to sensor status information including local alarm and event logs," said Mike Bragg, Product Marketing Manager at Det-Tronics. "Plus users will like the backlit, heated LCD that clearly displays gas concentration, and alarm and fault status."

Taking advantage of its flexible installation options, users can couple the FlexVu display directly to a single sensor or place it remotely using a sensor termination box. Outputs include analog 4-20 mA with HART, three alarm relays, one fault relay, and RS-485 Modbus. In its current release, the FlexVu UD10 display operates with the following Det-Tronics gas detectors/sensors (additional gas and flame detectors will soon be added):



The new Det-Tronics FlexVu display (shown here with the recently released GT3000 toxic gas detector) is a life-safety display unit that provides non-intrusive calibration, local event logging, and third-party performance certifications

Combustible gases

- PointWatch IR (PIR9400)
- PointWatch Eclipse® IR (PIRECL)
- Open Path Eclipse IR (OPECL)
- Catalytic Combustible Sensor (CGS) via the 505 transmitter

Toxic gases

- Nanotechnology Metal Oxide Semiconductor (NTMOS) hydrogen sulfide sensor
- Electrochemical sensors (C706x Series and GT3000)

Learn more at <http://www.det-tronics.com>. Det-Tronics is part of UTC Fire & Security, which provides fire safety and security solutions to more than one million customers around the world

ANSUL® INERGEN® Systems Protect Subways in China

Protecting the thousands of daily commuters who utilize China's mass transit infrastructure is of paramount importance. Recently, Tyco Fire Suppression & Building Products (TFS&BP) received an order to provide ANSUL® INERGEN® Clean Agent Fire Suppression Systems for the new Shanghai subway Line 10 and Line 7. These special hazard fire suppression systems have been custom designed to protect the entire station network of computer, telecommunications, power generation and supply equipment.

This was not the first time, nor the first subway line in China that the ANSUL INERGEN systems were selected to protect," Joey Wang, Senior Sales Manager from TFS&BP said proudly, "Every subway line in Shanghai has installed INERGEN clean agent systems in its stations."

Dating back to 1998, when the Shanghai subway Line 2 was still under the construction, ANSUL INERGEN clean agent fire suppression systems were selected to protect the communication equipment rooms, signal equipment rooms and high & low electric switch rooms at the 12 stations of the second subway line in Shanghai due to the product's completely friendly environmental profile.

Today, nearly 150 stations from all the nine Shanghai subway lines have installed or will install the INERGEN clean agent systems, including the new Line 7 and Line 10 which are scheduled to operate in 2009 and 2010. The Shanghai subway system incorporates both subway and light railway lines. It opened in 1995, making Shanghai the third city in Mainland China, after Beijing and Tianjin, to have a mass transit subway system. Since then, the Shanghai Metro has become one of the newest and fastest-growing rapid transit systems in the world.

Today, the Shanghai Metro rapid transit system is comprised of 8 subway lines, 162 stations and 225 km of tracks, making it the longest network in China, exceeding even the Hong Kong MTR. Daily ridership averaged 3.065 million in 2008 and set a record of 4.307 million on December 31, 2008. The system is still growing with more new lines and extensions under construction or being planned in the coming years. The length of the metro network will reach over 500 km by 2010.

With its growing reputation in China, ANSUL INERGEN systems were also selected to be installed in the subway stations of seven lines in Beijing, two lines in Guangzhou and will be installed in the new Line 2 in Nanjing and Line 1 in Shenyang in 2010.

"We chose ANSUL INERGEN systems for the important equipment rooms in our stations for all our subway lines in Shanghai because of the product's advanced technology and worldwide



reputation. Also, we have worked with TFS&BP people for 10 years now, and they are very experienced on the fire suppression systems and provide great service," said Zhou Wei, Fire Supervisor of Shanghai Metro, Department II, who is in charge of the fire security system for the subway station.

ANSUL INERGEN has been proven safe to breathe through a number of human inhalation studies. The agent had to be safe for the environment. INERGEN is comprised of naturally occurring atmospheric gases – nitrogen, argon, and carbon dioxide giving it zero ozone depletion and zero global warming potential. And most important for the electric room, it will suppress a fire without the agent itself becoming a threat to the equipment.

The ANSUL INERGEN Fire Suppression System is part of Tyco's full portfolio of clean agent suppression systems. The INERGEN Suppression System is available through Tyco's worldwide fire protection businesses in the USA, Canada, Latin America, Europe, Asia, Australia and New Zealand. For additional information on the ANSUL INERGEN Fire Suppression System, contact Tyco Fire Suppression & Building Products at (65) 6577 4360 or email: sales-ap@tycofp.com

APF

**Not subject to global regulations pertaining to greenhouse gasses.*

For more information, please visit www.ansul.com

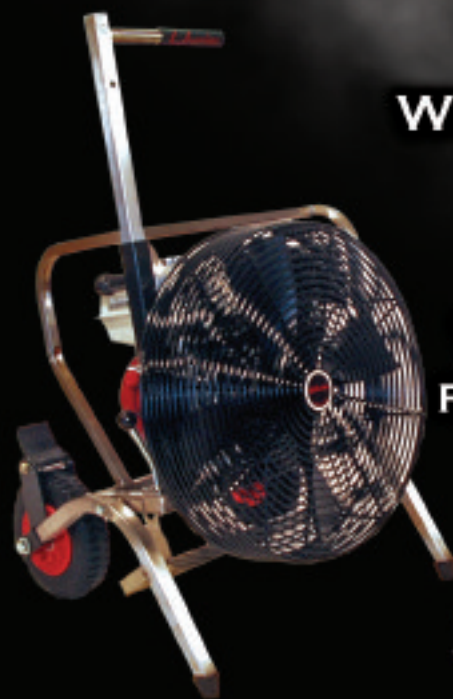
UNIFIRE

MANUFACTURERS OF HIGH PERFORMANCE EQUIPMENT



WHEN TIME MATTERS.
WHEN LIVES ARE AT STAKE.
WHEN SAFETY IS KEY.

CHOOSE THE BRAND
THE TOP TRAINING AND
RESCUE TEAMS CHOOSE.



UNIVENT BRAND SAWS ARE A DIVISION OF UNIFIRE

1-800-745-3282 • WWW.UNIFIREUSA.COM

One size fits all?

Moussol FF, a new universal foam manufactured by Dr. Sthamer of Hamburg has recently been independently accredited to ICAO Performance Level B. The foam is not overly viscous, is suitable for use with CAFS on both class A and B fires, is alcohol resistant, is rapidly biodegradable and is 100% fluorine free – but can one size really fit all?



By Jan Knappert

International Sales
Director, Dr Sthamer –
Hamburg

Dr Sthamer of Hamburg in Germany, has been established since 1886 when the chemist Dr. Richard Sthamer began his own pharmaceutical manufacturing facility. In the 1930's we developed and patented the stabilisers that make protein foam concentrate usable. At the beginning of the fifties we developed a synthetic, alcohol resistant gel forming foam compound for the first time, whereby a totally new foam concentrate generation was borne. Today, Dr Sthamer is the largest manufacturer of foam in Europe and holds a large number of approvals for its products from independent testing houses across the world ensuring they are suitable for use on fires involving petrochemical site, aircrafts, ships, wild-land and buildings alike.

Alcohol resistant

Today, alcohols (Methanol and Ethanol mainly) are important ingredients in many standard fuels but especially so in bio-fuels. Rapidly growing in use, currently bio-fuels are mainly constrained to road vehicles but already some commercial airlines have conducted flights using these as a test and they expect their growth in use in the future. The detrimental effect of alcohols or other polar solvents on a standard class B foam layer are well known.

ICAO Level B

The recent independent ICAO Performance Level B certification is a major milestone. Level B foams for Aircraft Rescue and Fire Fighting (ARFF) are the norm at most airports as using lower performance level A would require much greater quantities of media and higher application rates (and hence more and or larger vehicles) to meet the regulatory requirements. Unlike other Level B foams such as AFFFs or FFFPs, Moussol FF meets the higher performance level without using any fluorosurfactants.

CAFS

The use of Compressed Air Foam Systems is rapidly growing with the benefits of CAFS being well known: Smaller and more even bubble size leading to greater cooling efficiency, greater throw from monitors, less water used and less run-off, greater expansion with longer drainage times and greater adhesion of the finished foam to surfaces allowing insulation from radiated heat. Not widely known however is that some foams perform much better than others when used with CAFS. Perversely the high levels of fluorosurfactants in very high performance class B foams can cause a "non-stick" effect, removing some of CAFS greatest attributes for municipal brigade use. CAFS for ARFF vehicles is also growing in use in Europe with vehicles fitted with CAFS continuing to be supplied to both Norwegian and Danish airports.

Viscosity

Moussol FF has a low viscosity compared to other alcohol resistant and "universal" foams and unlike these it is also compatible with most foam proportioning systems and brands available today. Moussol FF is unlike some other AR foams which are thick like



treacle. This can create serious short and long term issues for many designs of foam proportioning systems. However, not only is Moussol FF lower in viscosity to begin with but it is a thixotropic fluid displaying a decrease in viscosity over time at a constant shear rate (a bit like a thin tomato ketchup!).

Fluorine free

Concerns about PFOS and PFOA yielding fluorosurfactants are widespread and the fire-fighting sources of these compounds have either already been removed or are scheduled to be phased out of production throughout most of the world. The telomerisation based fluorosurfactants used for decades in other Dr. Sthamer foams do not suffer the same level of consumer negativity. Independent test indicate these telomerisation based fluorosurfactants have low environmental toxicity and have low bioaccumulation factors. Even so understandable consumer worries continue about any very long term persistent compounds and Moussol FF contains none of these.

Biodegradable

There is little point replacing one persistent compound with another just because it is fluorine free. For that reason Moussol FF has been designed to degrade quickly (approximately 70% has gone within 28 days) but not too quickly as this would give very high BOD/COD. Finished Moussol FF solution (diluted to 3% as for use on non-polar fires) has a BOD comparable with tertiary treated waste water.

Limitations

Can one size really fit all, is Moussol FF a jack of all trades but master of none? "Moussol FF is not as effective on say a large mixed polar/hydrocarbon fires as for example Foamousse Omega or Moussol APS 3%. Nor is it quite as an efficient wetting agent on a wildland fire as Sthamex Class A. However, if a municipal brigade wants to standardise on just one foam to cover most risks or an airport wants to continue to meet ICAO Level B performance but improve its environmental credentials then this could be the right foam for the job – its all about choice and now our customers have one".

APF

For more information, please contact:

Jan Knappert

International Sales Director

Dr Sthamer – Hamburg

Tel: +44 (0) 7795 101770

Fax: +49 (0) 40 736 168 60

Email:

jknappert@sthamer.com

Website: www.sthamer.com

Water-look-alike Technology Fights Fire Without Causing Water Damage

SAPPHIRE® Fire Suppression System Designed for Facilities with Critical Assets

ANSUL® SAPPHIRE® Fire Suppression System is a groundbreaking advancement in fire protection technology. This revolutionary technology utilises a new sustainable* chemical agent that fights fires without causing any damage to electronics, works of art, irreplaceable artifacts and other critical assets. This system provides the ideal solution for hospitals, museums, libraries, telecommunications centers and other facilities seeking to protect critical assets that could be damaged by ordinary fire suppression systems.

The SAPPHIRE Suppression System uses 3M™ NOVEC™ 1230 Fire Protection Fluid. It looks exactly like water, but does not cause the type of damage associated with water when putting out a fire. It can be used to protect rare exhibits, electronic equipment and other delicate items without causing any harm. In fact, items can even be immersed in the agent. The fire protection fluid will quickly evaporate, safeguarding these items – and leaving them unaffected.

The SAPPHIRE Suppression System chemically interferes with the fire combustion process, therefore bringing it to a halt. It also works faster than a water sprinkler system, which is designed to work when it detects an actual flame. SAPPHIRE Suppression Systems detect fire at invisible levels, identifying particles of combustion before they turn into damaging flames.

The systems also offers central storage and modular design solutions that can work in tandem with existing building fire alarm and suppression systems, providing ideal building structure protection. The agent is stored in pressurised containers as a liquid and vaporises when discharged. When applied in a modular design, storage containers take up less space than other fire suppression systems, giving users more options for storage and placement. For example, by integrating the SAPPHIRE Suppression System into a current building fire alarm/suppression scheme, users can select key rooms or spaces to protect, making it a cost-effective solution.

Other benefits of the SAPPHIRE System include



an atmospheric lifetime of only five days, versus 33 years for the closest chemical alternative, as well as zero ozone depletion. In addition, the SAPPHIRE Suppression System offers the greatest safety margin over other non-sustainable halocarbon alternatives.

“The SAPPHIRE Fire Suppression System not only eliminates the issue of massive water damage but also greatly reduces actual fire damage by suppressing a fire in the pre-combustion stage,” said Dave Pelton, Director, Global Marketing and Communications, Tyco Fire Suppression & Building Products. “It is sophisticated, flexible, and engineered to be safe for people, products and the environment.”

The SAPPHIRE Fire Suppression System complements the ANSUL INERGEN® clean agent system. INERGEN and SAPPHIRE are part of Tyco’s full portfolio of clean agent suppression systems comprised of inert gas and chemical agents. For additional information on INERGEN and SAPPHIRE Fire Suppression Systems, please contact Tyco Fire Suppression & Building Products at: (65) 6577 4360 or e-mail, sales-ap@tycofp.com **APF**

**Not subject to global regulations pertaining to greenhouse gasses.*

For more information, please visit www.ansul.com

SOME THINGS ARE BORN TO BECOME OBSOLETE.



No matter what critical assets you intend to protect, ANSUL® SAPHIRE® and INERGEN® clean-agent fire suppression systems are today's answer. Both suppress the most intense Class A, B and C fires as quickly as halon and HFC/HCFC systems. Both do so without the damage of water. And best of all, both are sustainable, protecting your investment from future environmental regulations. INERGEN and SAPHIRE systems are part of the complete ANSUL clean-agent portfolio. Find out for yourself how ANSUL products are taking fire suppression into the future. And putting your worries about protecting precious contents in the past.

www.ansulinfo.com/aprotect



by Tyco Fire Suppression & Building Products

Tyco Fire Suppression & Building Products – Asia Pacific • 2 Serangoon North Avenue 5, #07-01 Fu Yu Building, Singapore 554911

Fire Fighting Foam Coalition

The Fire Fighting Foam Coalition, Inc. (FFFC) is a not-for-profit trade association whose members



are manufacturers, distributors and users of aqueous film-forming foam (AFFF) fire fighting agents and their chemical components.

The Coalition represents members' interests on all issues related to the environmental acceptability of fire fighting foams. FFFC also helps to ensure that accurate information about PFOS alternatives, including telomer-based products, is disseminated to appropriate audiences. The Coalition is a clearinghouse for information, supports the development of industry positions, and interacts on behalf of members with relevant government organizations.

FFFC has provided extensive information on AFFF to environmental agencies in the United States, Europe, and Canada that includes the following:

- Amount of fluorosurfactant actives used in the manufacture of AFFF in the United States
- Chemical structure of the fluorosurfactants used in major fluorotelomer-based AFFF formulations
- Mechanics of film formation

- Groundwater monitoring data from US military fire training areas
- US Inventory of PFOS-based and fluorotelomer-based AFFF
- Overview of the different types of foams, the market channel for their distribution, and the environmental fate once they are used
- Aquatic toxicity of fire fighting foams

The following companies are represented on the Board of Directors of FFFC: Ansul (Tyco), Chemguard, DuPont, Dynax, and Kidde (UTC). All of us believe strongly in the value of our products and their potential for fighting fires quickly and safely. Our products have been proven to provide knock-down, resist burnback and secure the enflamed area in flammable liquid – or class B – fires. From aircraft fires to major flammable liquid spills, our products have provided quicker, more effective results with less risk to firefighters, less property damage and reduced environmental impact. **APF**

For more information, please contact:

Fire Fighting Foam Coalition
2111 Wilson Boulevard
8th Floor
Arlington
VA 22201
USA
Tel: +1 703 524 6636
Fax: +1 703 243 2874
Email: Cortina@alcade-fay.com
Website: www.ffc.org



It's This Simple:

C6 Fluorosurfactants + C6 Foam Stabilizers

= BEST AR-AFFFs and AR-FFFPs

— “Best AR-AFFF and AR-FFFP Agents” meet the most stringent fire performance specifications with the lowest fluorochemical content. Fluorochemicals in “Best Agents” should neither be derived from nor degrade into PFOA or its higher homologs. In addition, “Best Agents” meet environmental requirements proposed by US and foreign regulatory agencies.

— ONLY Dynax offers a family of C6 Fluorosurfactants and C6 Foam Stabilizers for the production of low-viscosity 3x3, 1x3 and 1x1 AR-AFFF and AR-FFFP agents meeting “Best” environmental and fire performance requirements. The same applies to AFFF and FFFP agents derived from Dynax C6 Fluorosurfactants. All Dynax C6 Fluorochemicals are non-flammable and free of corrosive halide salts.

Dynax C6 Fluorosurfactants and Foam Stabilizers

Dynax Product	Ionic Type	Agent Application Guide			
		AFFF	AR-AFFF	FFFP	AR-FFFP
Fluorosurfactants					
DX1030	Anionic	●	●	—	—
DX1040	Anionic	●	●	—	—
DX1080	Nonionic	●	●	●	●
DX1090	Nonionic	●	●	●	●
DX1025*	Anionic	●	●	—	—
Foam Stabilizers					
DX5011	Anionic	—	●	—	●
DX5022	Anionic	—	●	—	●
DX5065**	Anionic	—	●	—	—
DX5066**	Anionic	—	●	—	●

* Blend of Fluorosurfactants ** Blend of Fluorosurfactants and Foam Stabilizers

US EPA PFOA Stewardship Program

By 2010: 95% Reduction of facility emissions and product content level of PFOA, precursor chemicals that can break down to PFOA and related higher homolog chemicals.

By 2015: Elimination of PFOA, PFOA precursors and related higher homologue chemicals from emission and products.

DYNAX CORPORATION

PO Box 285, Pound Ridge, NY 10576 USA

T 914 764 0202 techinfo@dynaxcorp.com

F 914 764 0553 www.dynaxcorp.com

dynax
FLUOROchemicals

Safety & Security Asia celebrates 20th year

Asia's safety & security market – explore, expand & experience the SSA 2009 advantages

See, meet & learn are Safety & Security Asia (SSA) 2009's three basic highlights with high-performance activities designed to provide a total and complete experience to all trade participants.

"In celebration of our 20th year anniversary, we are putting together a very unique and enriching safety and security show which is expected to raise the bar in the industry exhibition, said Mr. Edward Liu, Managing Director of Conference & Exhibition Management Services (CEMS).

"When we planned for this year's SSA, we simplified then identified the impending and very complex needs of the safety and security sectors given the present-day global challenges. Using our many years of experience in these sectors, our market understanding through constant consultation with our partners and our exposure to the Asia terrain as operational framework, we drew up an "activity map" that would address these business needs, both in their long-term and short-term growth potentials."

Set to be held at Suntec Singapore on 30 September to 2 October 2009, this event-within-an-event model that SSA 2009 is implementing aims at creating a common place where both the key and aspiring players of more than 120 global companies from 22 countries are given the unlimited opportunities to interact and build links with their target market through various activities that may suit their own industry interests.

SSA 2009 also features two important segments, Fire & Rescue Asia and Homeland Security Asia, which embrace the entire value-chain of the whole safety and security industry.

Complete information for event participants on industry breakthroughs starts the whole SSA 2009 experience even before the show through various channels. During the event, product-driven showcases and activities from key global players guarantee better understanding of the product's advanced features and benefits by visitors. Much-anticipated treat is an array of new products and services that are currently deployed in Europe and the United States to combat acts of theft and terrorism.

And in the Merlion Awards event, a gathering that honours topnotch innovations and designs, including brand and product reliability, all participants come together to promote excellent security products, services and technology.

LEARN and benchmark world's best safety & security practices

Through powerful seminars organised together with conference and knowledge partners, hand-picked and relevant topics on today's global safety and security requirements with impressive line-up



of experts as speakers allow all participants to engage in an enriching learning experience with other industry members. Among the specialised conferences include topics on retail security, shopping mall security and seminars on global technology and fire safety.

The IFE-NFPA workshop put together by IFE Singapore which aims at bringing the NFPA training to anyone's doorsteps. The requirements of the latest NFPA Standards for NFPA 72 (2010), NFPA 130 (2007) and NFPA 502 (2008) will be covered in these workshops.

Finally, series of global technology seminars that are sponsored by participating companies provides the latest updates on safety and fire technology including applications.

MEET, network and forge business alliances with the right people

Participant-focused networking schemes, from SSA's pre-scheduled appointment (PSA) and hosted buyer programmes, to various high-profile gatherings, provides both the exhibitors and buyers the unique opportunity to drive the relationship and interaction to more personalized meetings and pre-arranged presentations/demonstrations. These activities do not only facilitate and shorten a complex buying process, but ensure that quality business transactions with the right partners are carried out all throughout the networking experience.

APF

SAFETY & SECURITY ASIA 2009

10th International Safety & Security Technology & Equipment Exhibition & Conference

Concurrent Events



For more information, please contact:
Mr. Steven Tan
 Tel: +65 6278 8666
 Email: steven@cems.com.sg
 Website:
www.safetysecurityasia.com

SAFETY & SECURITY ASIA 2009

10th International Safety & Security Technology & Equipment Exhibition & Conference

Concurrent Events



Celebrating **20th** year of building a safe & secure world

*Asia's Safety & Security Market
in Challenging Times*

The Total Solutions

aif
Approved International Fair
Awarded by IE Singapore

SUNTEC SINGAPORE, Level 4 Halls 403 & 404 • 30 September - 2 October 2009 • 10am to 6pm

SEE & DISCOVER

*the industry's cutting edge equipment & technological advancement
of more than 120 global companies from 22 countries*

**Meet, network & forge
business alliances with the right people**

- Quality trade exhibitors
- High profile gathering of industry's who's who at the industry gala dinner
- Participant-focused networking schemes



**Learn & benchmark
world's best safety & security practices**

APSA International Conference 2009

Regional Cooperation in Combating
Crime and Terrorism
30 September - 01 October 2009

Commercial Premises Security Conference 2009

Retail and Shopping Centre Security
30 September 2009

IFE-NFPA Workshops

National Fire Alarm Code
Standard on Fixed Guideway Transit
and Passenger Rail Systems
29 September - 02 October 2009

Global Technology Seminars

Latest Security And Fire Technologies
and Applications
30 September - 02 October 2009

To register online, please visit www.safetysecurityasia.com.sg

For more information, please contact **Mr. Andrew Lim** at (65) 6278 8666 or email: andrew@cems.com.sg



Conference & Exhibition Management
Services Pte Ltd
1 Maritime Square #09-43
Harbourfront Centre Singapore 099253
Tel: (65) 6278 8666 Fax: (65) 6278 4077
Email: info@cems.com.sg

Organiser:



Endorsed by:



Held in:



Knowledge Partner:



Official Publication:



Wormald Sets Sights On Fire Protection Services In Asia Pacific

Tyco Fire Protection Services to consolidate fire protection brands in Asia with the launch of the Wormald brand in Singapore.

Wormald, part of Tyco International and a pioneer in fire protection services in Asia Pacific, today announced strategic plans to step up its presence and take advantage of the growing demand for fire protection services in the region. Tyco Fire Protection Services Asia Pacific is launching an extensive re-brand of its fire businesses to Wormald which celebrates its 120th anniversary this year. This re-brand is starting in Singapore and will roll out to other key Asia locations over the next few months. As the company's Asia hub, Singapore has been specifically chosen as it is home to a large number of multinational companies which are a key focus area for Wormald. The re-brand will give customers access to global best practices in advanced fire protection for a wide range of industries including public infrastructure and commercial buildings as well as critical applications such as marine/oil rigs and the energy sector.

Wormald is part of Tyco International, one of the world's largest fire and safety systems organisations with operations in more than 80 countries. Its global Fire Protection segment has global annual revenues of US\$3.5 billion.

Richard Kelleway, President of Tyco Fire Protection Services Asia-Pacific, said: "Through our long history in the region, Wormald has earned the reputation as the foremost provider of fire protection systems and solutions. Establishing Wormald Singapore as one of our Asia bases is a strategic decision as it has one of the most stringent regulations on fire safety in the region. As we are seeing a lot of public and private sector investment into new buildings and facilities, our re-brand for Wormald is significant for the industry, which is growing in tandem with infrastructure needs."

In the past five years, Tyco Fire Protection Services has seen steady growth, with Southeast Asia contributing about 15 percent of Asia Pacific revenues. The company is not seeing significant slowdown in the current economic climate and expects growth to be driven by critical industries that seek cutting-edge fire protection solutions beyond local regulatory requirements.

Kelleway pointed out: "Asia Pacific presents a wealth of opportunities for the fire protection industry. In the next five years, the key markets for us are India and China which are emerging markets with a large number of industrial and commercial developments in the pipeline."



Richard Kelleway, President of Tyco Fire Protection Services Asia-Pacific

In Singapore, Wormald has been involved in a number of large scale private and public sector projects. Past major projects include installing sophisticated fire protection systems for Changi Airport and a pharmaceutical facility in Tuas, and ongoing projects include fire protection engineering support and supplying fire protection solutions at the Circle Line for Mass Rapid Transit (MRT) and road tunnel works. Besides being involved in major projects, Wormald also sees opportunities to share knowledge with the fire protection services industry across the region.

Kelleway added: "The largest change will be that our businesses in Asia Pacific will now have access to the vast knowledge bank developed by Wormald in Australia and New Zealand and our other fire protection businesses around the world. The training of local fire industry professionals will be a big part of our investment going forward. Wormald currently employs more than 5,000 people in the region and we will look to hire more people to support our growing business."

APF

WORMALD
Fire Protection Specialists

For more information, please contact:

Tyco Fire Protection Services Asia Pacific
Tel: +61 2 9947 7368
Mob: +612 439 020 103
Email: csingleton@tycoint.com



Rescue starts here



NEW Generation !

Visio Stab
Controller
Detects structural movement to alert urban search and rescue teams

Visio Search
Audio communication and monitoring screen





Audio Res0
Detection and Localisation of casualties

Up to 6 sismics sensors

Call for free demonstration !

SEARCH & RESCUE EQUIPMENT NEW DIGITAL TECHNOLOGY

Certified
ISO 9001

www.groupe-leader.com

Tel +33 (0)2 35 53 05 75 - Fax +33 (0)2 35 53 16 32



Tomorrow's technology today



multi-size plugs for larger pipeline diameters PLUGY and PLUGSY



low- and medium-pressure air bags 0.5 bar and 1.0 bar



high-pressure air bags 8.0 bar



leak sealing bags



inflatable stretcher



rescue walkway



self-supporting interceptive tanks



mobile decanting units





SAVATECH d.o.o.
Industrial Rubber Products and Tyres
Environmental Protection products

Škofjeloška c.6, 4502 Kranj, Slovenia
tel.: +386 4 206 63 88
fax: +386 4 206 63 90

www.savatrade.com

TAKE YOUR C.A.F.S. TO THE
EXTREME
CAFS FOAM



THE
FIRST AND **ONLY**
FOAM CONCENTRATE
DESIGNED SPECIFICALLY
FOR C.A.F.S.



204 South 6th Ave Mansfield Texas USA 76063
www.chemguard.com



A CAFS application with Chemguard EXTREME fire suppression Class A foam concentrate can control smoke and toxic gases



Using CAFS to Control and Extinguish Coal Mine Fires

Uncontrolled fires in coal mines around the globe endanger lives, waste natural resources, damage infrastructure, and release greenhouse gases. A new fire control method and a novel foam are being employed to extinguish coal mine fires – and other stubborn and deep-seated fires – and prevent them from reigniting.

By Mark Cummins

President, Cummins Industries/Co-Owner, CAFSCO
and

Lisa LaFosse

Co-Owner, CAFSCO

The use of compressed-air foam systems (CAFS) with a recently developed fire suppression foam concentrate represents a new approach for controlling and extinguishing coal fires and for preventing the spontaneous combustion that can occur when coal is exposed to oxygen. In CAFS applications, a biodegradable compressed foam containing oxygen-consuming microbes is injected into sealed sections of coal mines, such as sealed gob areas, or into underground coal seams. The foam provides a perfect living environment for the oxygen-consuming microbes, which produce natural carbon dioxide as they eliminate oxygen. At the same time, the water in the foam reduces the heat, decreases the risk of methane explosions, and prevents reignition.

The effectiveness and efficiency of CAFS applications is unmatched for controlling and extinguishing coal fires in both subsurface and open cast (strip) mines. With CAFS and CAFS-formulated foam concentrate, firefighters can achieve faster knockdown than with water – with lighter hoses that do not require brute strength to control – as well as quicker heat reduction, dramatically reduced water requirements, and lower pump pressures. The CAFS technique also can absorb smoke and toxic gases, prevent rekindle, improve safety of the fire fighting operation, and shorten mop-up time.

CAFSCO, a leader in CAFS technologies and applications for fighting deep-seated fires, and Chemguard, a global developer of fire suppression chemicals, equipment, and systems, are

Coal fires – global problem, global challenge

Coal mine fires result from a number of causes, including spontaneous combustion, lightening, mining operations, and fires set for trash burning and deforestation. Burning coal generates sufficient heat to keep a seam or pile burning until it is either starved of oxygen or has consumed the resource. In an underground fire, pressure from the gas buildup can fracture the surface, which allows oxygen to feed the fire while also causing land to collapse, damaging vegetation. In some instances, coal fires cause wildland fires, which can result in additional coal burning, creating a cycle of burning.

The many thousands of coal mine and coal seam fires burning around the globe pose tremendous health, environmental, infrastructure, and resource problems for the regions in which the fires are located. In addition, these uncontrolled fires – some of which have burned for decades – have serious global environmental implications because of the release of greenhouse gases (carbon dioxide, carbon monoxide, and methane). The authors of a 2008 study by the University of Maryland, “The Neglected Greenhouse Source: Curbing Emissions from Uncontrolled Coal Fires Through Carbon Credit Sales,” estimate that worldwide uncontrolled coal fires could total at least 4% of total emissions of greenhouse gases.

China (the largest coal-producing country in the world) and Indonesia each has a sizable number of coal fires. The Maryland researchers estimated that as high as 90% of China’s coal fires burn uncontrolled, with little or no effort made to control or extinguish them.

For surface fires and shallow seam fires, excavation can effectively combat coal fires. Deep-seated subsurface fires, however, and stubborn surface fires, demand aggressive measures, with an emphasis on keeping oxygen from further feeding the fire. The detrimental impacts of these ongoing burns could be lessened, if not alleviated, by the use of nontraditional fire suppression techniques, such as compressed-air foam systems (CAFS) and Chemguard *EXTREME* Class A foam concentrate.

collaborating on the use of CAFS with Chemguard biodegradable *EXTREME* Class A foam concentrate, which was formulated specifically for CAFS applications. In a recent dramatic demonstration of the effectiveness of CAFS and Chemguard *EXTREME* foam concentrate, CAFSCO successfully extinguished the ignition source of a fire in an active coal mine in Virginia and displaced toxic carbon monoxide from the working areas.

CAFS used with *EXTREME* foam concentrate can also be used effectively on other deep-seated fires, such as fires in landfills, mulch piles, and tire dumps.

CAFS: effective, efficient coal fire suppression

Compressed-air foam systems (CAFS) date to the mid 1970s, when CAFSCO Co-Owner Mark Cummins (then with the Texas Forest Service) designed and patented a foaming system with compressed air and nitrogen cylinders, water, and detergent. This breakthrough – known as the Texas Snow Job – was refined over time with air compressors, pumps, and foam-proportioning equipment into the high-output, precisely

regulated CAFS systems available today. Likewise, the initial wildfire applications for CAFS broadened to the tough challenges of deep-seated coal mine fires. Today’s CAFS applications also benefit from Chemguard *EXTREME* Class A foam, a biodegradable, oxygen-hungry foam concentrate formulated specifically for CAFS.

Fire suppression foam essentially is a temporary blanket of water, held in the film of the foam bubbles. The thin film of the bubbles absorbs heat much faster and more efficiently than plain water, and the foam blanket keeps the water in contact with the surface of the coal as long as required to soak into the coal, absorb internal heat, and smother the fire. With bore holes, firefighters can lay foam blankets deep into the subsurface voids caused by fire and fill coal mines (and landfills) with wet soaking foam without exposing personnel to the hazardous conditions of an underground burn site.

When applied on deep-seated fires, foam initially smothers the fire, blocking contact with oxygen. Then the foam layer in contact with burning material collapses, turning to water (water is released from the bubble film), which flows onto water-repellant ash. The surfactants in the Chemguard *EXTREME* foam concentrate mixture soak through the ash into the fire surface, and the water removes heat from the fire as it turns to steam. Importantly, with CAFS firefighters can control foam consistency, foam blanket thickness, and foam drain rate by regulating the ratio of water to foam concentrate (use ratio typically between 0.1% and 1.0% foam concentrate) and the ratio of air to foam solution. In some applications it is desirable for the water to drain from the foam quickly to penetrate deeper into the coal, while in other applications slower draining is preferred so a heavy blanket will capture steam and carbon dioxide under the blanket to help smother the fire.



Uncontrolled coal seam fires can ignite wildfires, which in turn can reignite coal, creating a cycle of fire

Foam Concentrates and Foam Systems for all applications



DAFO FOMTEC AB P.O Box 683 SE-135 26 Tyresö Sweden

Phone: +46 8 506 405 66 Fax: +46 8 506 405 29
E-mail: info@fomtec.com Web: www.fomtec.com

In nitrogen foam injection applications, CAFS with Chemguard EXTREME Class A foam concentrate dramatically reduces the volume of expensive nitrogen required to render the sealed areas inert, while improving the toxic gas dissipation rate



CAFS equipment produces high output of a dense foam, delivered via fire hose for spraying surface fires or injecting into bore holes. With its characteristic rapid coverage and low water requirements, CAFS fire suppression is a very efficient way to use water while minimizing environmental impact and reducing cleanup requirements from water runoff. Also, with CAFS firefighters can adjust the concentrate level for variations in water quality; hard or contaminated water may require additional concentrate to

generate the type and quality of foam needed.

CAFS implementation does not require greater hose line pressure. At the same rate of application, a CAFS stream far outreaches a water-only stream. Also, with CAFS the hose line pressure is more consistent than with water only, with less friction loss, which allows longer lines at a given pump pressure – benefiting firefighters as well as their equipment. Importantly, handling CAFS hose lines requires less strength than heavy water-only lines.

CAFS foam injection is far more cost and time effective than carbon dioxide gas or nitrogen injection. Although carbon dioxide and nitrogen injection have merits, these gases alone can only dilute oxygen. Carbon dioxide and nitrogen will not impact a burn as effectively as the water released from compressed foam, and great quantities of the gases are required to extinguish a fire. (The carbonic acid produced when carbon dioxide comes in contact with water is an environmental problem that can be neutralized with alkalis and acid-consuming microbes, which can be added to the foam injection process as needed.)

CAFS and coal fire carbon credits

Currently, the use of the carbon credit markets is being explored as a means of drawing attention – and revenue – to the multifaceted global problem of coal fires. According to researchers at the University of Maryland, “The sale of carbon credits generated from the extinguishing of coal fires represents a potentially promising means for obtaining the funds necessary to put many fires out, particularly in the developing world.” (See “Coal Fires – Global Problem, Global Challenge.”)

China and Indonesia, where many uncontrolled coal fires (often in shallow seams) threaten health and the environment, waste resources, and release significant volumes of greenhouse gases, exemplify countries where appropriately priced carbon credits could provide the financial motivation to address dangerous and ongoing coal fire problems.

Already the carbon credit markets are used for other initiatives to reduce greenhouse gas emissions – such as reforestation and methane capture. Combining carbon credits with a proven fire suppression technology like CAFS and an appropriate fire suppression foam, such as Chemguard *EXTREME* foam concentrate, could be the most effective and efficient approach to fighting the coal fires that burn throughout the world.

CAFS-formulated *EXTREME*

The first (and only) foam concentrate designed specifically for compressed-air foam systems (CAFS) applications, Chemguard *EXTREME* Class A foam concentrate is non-corrosive, non-toxic, and biodegradable. Proportioned correctly, it dramatically changes the properties of water, reducing surface tension and producing a dense foam that allows the water (maintained in the foam bubbles) to cling to vertical or horizontal surfaces without runoff. Because of its penetrating and wetting characteristics, the foam can saturate the interior of a mine from floor to ceiling, entering all cracks and crevices, effectively soaking out all sources of ignition. With *EXTREME*, water consumption can be reduced by 60-80%. *EXTREME* can be used

Complete Protection



Protecting the World's firefighters

Specialist clothing & equipment

Bristol Uniforms is one of the World's leading designers and manufacturers of innovative firefighter protective personal equipment. We supply to fire and rescue services in over 110 countries offering a comprehensive range of equipment and services including:

- clothing that meets international performance standards for use in structural close proximity and wildland firefighting as well as urban search and rescue protective clothing
- a complete range of accessories, helmets, boots, gloves and tools
- Bristol Care™ - offering flexible solutions for garment care and maintenance.

Please visit our website for full details of all product and services or contact us directly.

Bristol Uniforms Ltd.
Bristol, United Kingdom. BS16 5LL
Telephone +44 (0) 117 956 3101
enquiries@bristoluniforms.co.uk
www.bristoluniforms.com



SOLBERG

Solberg offers products of high quality and within the highest technology standards to the international fireprotection market

FIGHTING THE FIRE DRAGON

WITH CLASSIC AFFF/ATC, MODERN ORGANOHALIDES FREE FOAMS OR CLASS A FOAMS



RE-HEALING FOAM™

Organohalides free foams



ARCTIC FOAM™

AFFF/ATC foams



FIRE-BRAKE FOAM™

Class-A foams

Head Office Norway

Solberg Scandinavian AS
Olsvollstranda
N-5958 Sæbøvågen
Norway

Australia / Asia

Solberg Asia Pacific Pty Ltd
3 Charles St, St Marys, 2760, NSW
Telephone (612) 9673 5300
Fax (612) 9673 5303

Emergency Stock Hotline

(Norway)

+47 976 40 000

(Asia Pacific Region)

+612 9963 3148



www.solbergfoams.com

CAFSCO Co-Owner Lisa LaFosse demonstrates that high-volume CAFS hose lines – which are significantly lighter than water-only hose, with less pressure – can be handled without brute strength



CAFS for fires in landfills, mulch piles, and tire dumps

The use of compressed-air foam systems (CAFS) with Chemguard *EXTREME* foam concentrate to combat coal fires is increasing as fire fighting professionals become familiar with the effectiveness and efficiency of CAFS applications and begin to understand the CAFS cost, health, safety, and environmental benefits. Notably, using CAFS can shorten recovery time and cut costs in toxic gas dissipation and fire-fighting operations, desirable objectives for any stubborn burn.

Fires in landfills, mulch piles, and tire dumps share many of the fire suppression challenges of deep-seated coal mine fires. For all these settings, reducing heat, eliminating

oxygen, wetting the burn material, and controlling toxic gases and hazardous runoff also are critical – and demanding. Using CAFS equipment and techniques with Chemguard CAFS-formulated and biodegradable *EXTREME* Class A foam concentrate can speed knockdown, reduce water usage, shorten operations, and improve safety for firefighters in these challenging fires as well.

APF

Mark Cummins, President of Cummins Industries, Inc., Co-Owner of CAFSCO, and President of Steele Creek Acres Volunteer Fire Department (Bosque County, Texas), has 45 years in the fire service. In 1976 he developed and patented the first compressed air foam systems (CAFS). He also flew the first aircraft to drop foam on a forest fire, was first to extinguish a coal mine fire with CAFS nitrogen foam, was first to extinguish a landfill fire with injected foam, and is the first to use and patent microbes to consume oxygen and prevent spontaneous combustion fires.

Lisa LaFosse, Co-Owner of CAFSCO, member of Steel Creek Acres Volunteer Fire Department (Bosque County, Texas), has been a professional firefighter for 5 years. A hazardous material technician, research specialist, international marketing manager, and photographer, she also is the co-patent holder of microbes to consume oxygen and prevent spontaneous combustion fires.

with fresh and salt water and is suitable for aspirating or non-air-aspirating handline nozzles, as well as with helicopter buckets (helibuckets or “Bambi” buckets) and fixed-wing aircraft for aerial firefighting. When used for nitrogen foam injection, CAFS and *EXTREME* reduce substantially the volume of expensive nitrogen required, while also improving the toxic gas dissipation rate.

When the compressed foam bubbles produced by CAFS are exposed to the heat of combustion, the water in the foam bubbles immediately converts to steam, expanding 1,700 times the volume of the water. This tremendous volume expansion creates a positive pressure in the area of combustion, which prevents new oxygen from entering the sealed areas and further feeding the fire.

The surfactants in Chemguard *EXTREME* foam concentrate are very good degreasers and will break through the water-repellant soot and ash caused by incomplete combustion of coal. (Coal soot prevents untreated water from wetting the area around the combustion zone.) The steam (water vapor) and surfactants trapped under a foam blanket carry the heat away from the burn area via evaporation cooling, which drops the temperatures in the surrounding areas. The foam bubbles promote continuous evaporation cooling in the cracks and surfaces of the coal, while microbes in the foam consume the oxygen and replace it with organic carbon dioxide, preventing further oxidation or heating of the coal.

The “carbon-loving” characteristic of the surfactants in *EXTREME* help minimize the toxicity of the products of combustion. The compressed foam absorbs smoke and toxic gases, expurgating carbon monoxide and coal dust. Also, because the foam cools the carbon dioxide emitted by a fire, the carbon dioxide in the burn area becomes heavier than air, sinks, seeps into areas in which foam has not reached, and helps extinguish the fire.

With coal fires, particularly deep-seated coal fires, it’s the size of the problem that’s the problem. In many instances, applying a lot of foam can begin to control a lot of fire. The objective is to put the oxygen-eating microbes to work so they can remove oxygen while the foam smothers the fire and reduces the heat. Because the CAFS application of *EXTREME* foam both removes heat and suppresses vapor, it also effectively reduces the chance of flashback.



*CAFSCO injected more than 700 million gallons of nitrogen-enhanced foam, generated from Chemguard *EXTREME* Class A foam concentrate, into a five-square-mile area of an active coal mine in Virginia to extinguish the ignition source and to displace toxic carbon monoxide from the working areas. Compared with traditional nitrogen injection, the CAFS approach reduced the volume of costly nitrogen required and allowed the mine to reopen more quickly*

Cutters Edge® MULTI-CUT® FIRE RESCUE SAWS

Cut Anything!

CUTTERS EDGE® gasoline powered MULTI-CUT® FIRE RESCUE SAWS
are built stronger to work harder and operate longer
in the most extreme fire and rescue conditions

CE735R MULTI-CUT® ROTARY RESCUE SAW



The CUTTERS EDGE® MULTI-CUT® ROTARY RESCUE SAW has a Hemispherical Head Piston and High Torque Gear Ratio for maximum power. Its BLACK DIAMOND™ Cutting Disc will **cut any material** - metal, concrete, composites, plastics, bullet-proof glass...ETC. And just one BLACK DIAMOND™ Cutting Disc can last as long as 100 other blades!



CE101C CONCRETE CUTTING CHAINSAW



This CONCRETE CUTTING CHAINSAW cuts 16-inches (40cm) of reinforced concrete. Its GCP SealPro® Diamond Chain is lubricated and cooled with water so there is no dust.



MULTI-CUT® FIRE RESCUE CHAINSAW



The MULTI-CUT® FIRE RESCUE CHAINSAW has a Guard to protect the operator and the Carbide BULLET® Chain cuts more types of materials, stays sharp and will last longer than any other chain!



All MULTI-CUT® FIRE RESCUE SAWS are available in a custom Aluminum Box that includes all accessories, tools and spare parts to get the job done at any emergency.



MULTI-CUT® Rotary Rescue Saw Kit



Concrete Cutting Chainsaw Kit



MULTI-CUT® Fire Rescue Saw Kit

THERE IS MORE THAN ONE WAY TO SUPPRESS A FIRE.



THE EXPERTS AT FIKE SELECT ONLY THE BEST.



ECARO-25®

Exceptional, cost-effective
clean agent fire protection.
DuPont™ FE-25™



PROINERT®

Unique inert gas valve
yields significant system
and installation savings.



DuPont™ FM-200®

Waterless clean agent fire
suppression solutions for the
modern workspace — only
from DuPont.

Fike doesn't just offer protection. We develop technologically advanced fire suppression systems that protect your bottom line, as well as your facility and assets. **ECARO-25, PROINERT, DuPont™ FM-200®** are USGBC LEED® recognized.

At Fike, we're known for:

- Innovative, reliable products
- Fast, responsive service
- Creating a partnership with our customers

Fike®

**FIKE HAS THE MOST COST-EFFECTIVE, INNOVATIVE
FIRE SUPPRESSION SOLUTIONS AVAILABLE.**

**WWW.FIKE.COM
+60-3-7859-1462**

© 2009 FM Global.
Reprinted with
permission. All rights
reserved



Flammable Liquids

An overview of some basic protection principles



**By Brendan
MacGrath**

Manager, International
Codes & Standards
Group

When controlled, flammable liquids can fuel a vehicle, coat furniture, dissolve soap scum, lubricate a drill press or adhere two plastic pieces. Uncontrolled, they can destroy entire facilities by fire and cause tens of millions of pounds in damage and business interruption, as well as harm soil and water supplies through runoff. This article aims to provide the reader with some practical tips on how to minimise flammable liquids fire hazards.

It takes so little – just a spark of static electricity – to ignite vapours from a flammable liquid leaking out of a pierced container. Once ignited, burning vapours engulf the entire amount of released liquid, rapidly producing extremely high temperatures. Within seconds, fire temperature and flame height can reach their peaks potentially exposing a building to disastrous consequences.

Learning from losses

The following two losses illustrate the extent of damage that can result:

- A US\$27 million estimated gross loss occurred in a manufacturing plant when workers using

an acetylene soldering torch ignited insulation soaked with heat transfer fluid. Fearing an accidental discharge, a worker put the fixed automatic CO₂ extinguishing system on manual operation before soldering began. The system failed during the fire because it was installed improperly. Fire, smoke and water damaged equipment in a sterile production area.

- A US\$44 million estimated gross loss resulted when a 620MW generator sustained a lubricating oil fire. Failure to shut off or bypass oil flowing to the filters of the hydrogen seal oil system caused the fire. While cleaning the filters, an employee removed some bolts which

caused the seal to rupture and release lubricating oil at 70-90psi (483-621kPa). Oil spewed out of the opening, contacted hot piping, and ignited. The generator, two LP turbine sections, steam pipes, oil piping and isophase bus bars sustained extensive damage. The roof over the turbine generator unit sagged over about a 929 sq m (10,000 sq ft) area pulling the walls in about 1.5 m (5 ft).

Know your (flammable) stuff

Unfortunately, it's sometimes only in the wake of large fires like those above that plant operators appreciate the full extent of the hazards of the flammable liquids present in their properties. For example, lithographic printing generally uses oil-based inks which usually have relatively high flashpoints ranging from 200 to 300°C. But don't be deceived by their difficulty of ignition: one should not be fooled by the mythical notion that such liquids don't even burn! The heat generated from an overheated bearing is sufficient to ignite and sustain combustion of these inks causing very significant damage to for example to a printing

93°C, this cannot be reliably achieved.

Overall, the intent of this simplified classification is to highlight that, liquids which can be ignited, or **"ignitable liquids"**, can and do present a hazard to industrial facilities and therefore, they all need to be identified, analysed and suitable measures taken to reduce the consequences of a fire involving them.

Know the hazards

The intensity and severity must be the most significant hazard of flammable liquids. With fire protection for solids, the goal is to contain the fire to its point of origin. That is not so applicable to liquids which can easily flow quickly extending over large surface areas. As the surface area grows, so therefore does the rate of heat release.

Three scenarios are typical of flammable liquid fires:

- Pool fires are the least severe. Liquids are released from a leaking or spilled container close to grade level with the liquid accumulating in a banded area. The heat release rate is "restricted" by the rule-of-thumb rate of

The intensity and severity must be the most significant hazard of flammable liquids. With fire protection for solids, the goal is to contain the fire to its point of origin. That is not so applicable to liquids which can easily flow quickly extending over large surface areas. As the surface area grows, so therefore does the rate of heat release.

press. Additional "culprits" are blanket wash solutions. These liquids have flashpoints typically lower than 100°C with a range of 30°C to 60°C not being uncommon. Per occupational and transport safety regulations, such liquids are not typically classified as "flammable" liquids and as such, do not have flammable hazard warning labels e.g. in the EU, the flammable symbol is not required if the liquid's flash point is over 21°C. Yet despite compliance with such regulations, experience demonstrates that these liquids can and do burn with major consequences.

This disparity illustrates the challenge faced by the industry when trying to identify and manage the hazards of such liquids present in these facilities. This confusion is further compounded by the use of terms such as "highly flammable", "flammable", "combustible" and "non-combustible". FM Global has in recent years adopted the definition of a flammable liquid as "any liquid with a fire point". In FM Global property protection standards (available free at www.fmglobalsdatasheets.com), a distinction is often made between those having flash points less than and greater than 93°C. This is in order to determine whether a particular liquid stands a chance of being extinguished or not by a water-based protection system such as fire sprinklers; over 93°C, this is possible while under

combustion of a liquid pool of one inch depth every seven minutes.

- Three-dimensional spill fires, typified by a spill falling to the floor from an elevated leaking vessel, pipe or container, have a much greater mass to surface area ratio than a pool. Therefore, they can release far greater amounts of heat as they don't have the same rule of thumb restriction.
- Spray fires are the most intense. When liquid sprays it produces fine droplets which maximise the total surface area available to burn. Such sprays are often caused by high-pressure leaks, which can produce a "flame-thrower" effect, e.g. in the case of hydraulic oil in extrusion presses, some 10 to 12 m long!

How to minimise hazards

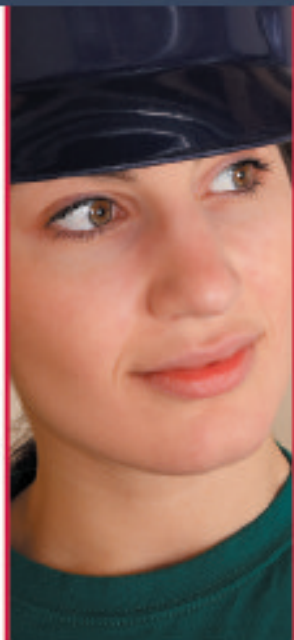
Four essential principles for curtailing flammable liquid fire damage are:

1. Drainage
2. Isolation
3. Cooling
4. Confinement

1. Drainage

A well-arranged drainage system on the floor is the best protection you can buy. Ideally it should

Fire & Gas Safety Systems



Simplify Gas Detection



*interactive display
for all types of
gas detection*

*non-intrusive
calibration via
simple menu
structure*

*third-party tested
to performance
standards*



**FlexVu®
Universal
Display**

flexvu.det-tronics.com



DET-TRONICS®
A UTC Fire & Security Company



Smoke means an immediate alarm.

SecuriRAS® ASD aspirating smoke detector with HD sensor

Securiton AG, Alarm and Security Systems
www.securiton.com, info@securiton.com
A company of the Swiss Securitas Group

SECURITON
For your safety

© 2009 FM Global.
Reprinted with
permission. All rights
reserved



be like a trench drainage system designed to remove fuel and all water discharge from the building. Drainage protects the building by removing the fuel and protects the environment by controlling the released liquid and sprinkler discharge. Without drainage, a burning liquid can quickly spread inside a building and to yard areas, potentially releasing contaminants into the environment.

2. Isolation

Flammable and combustible liquids present a significantly greater fire hazard than most solid materials. If flammable liquids are secondary to the main process, the best way to minimise the exposure is to isolate excess quantities of flammable liquid storage. A separate low-value building or a cut-off room with 1 hour-rated walls (minimum) is recommended. In cut-off rooms, provide some way to prevent liquids from escaping into the main plant areas. When designing the isolation plan, carefully consider liquid transport routes from the point of delivery to the cut-off room; transporting flammable liquids through a facility presents the same severe fire hazard as liquid storage or use. Ideally, cut-off rooms should be

located next to the point where liquids are expected to enter a facility.

3. Cooling and extinguishment

The wet pipe automatic sprinkler system is your first line of defence for controlling temperatures in a flammable liquid fire; all other protection is supplementary. Sprinklers extinguish fires that involve high flash point liquids above 93°C (200°F). They cool the area to prevent structural and equipment damage and dilute water-miscible liquids such as methyl alcohol and acetone until they are no longer flammable. Sprinklers also smother fires that involve liquids heavier than water.

Sprinkler discharge will not extinguish fires that involve liquids with low flash points. A fixed special protection system – such as total flooding to protect an entire room or area, or local application for localised hazards – may be needed such as CO₂ or other gaseous suppression systems, dry chemical or aqueous film-forming foams (AFFF).

4. Confinement

Confine flammable liquids and their vapours inside equipment and piping to prevent vapours from leaking and contacting any ignition source. Provide rapid shutoff in case liquids release.

Equipment should hold the weight of the liquid and be able to resist fire, impact, vibration, corrosion and erosion. Process vessel supports should either be made of fire-resistant materials such as concrete or protected steel, or be protected with water spray. Provide open vessels such as dip tanks and some

mixers with devices to minimise entry of sprinkler water. Use emergency bottom drains to direct the flow to a safe disposal point. Provide open tanks with automatic closing covers. Also provide automatic and remote manual means for shutting off product flow in case of equipment failure or fire.

For further details, please see FM Global's Data Sheet 7-32 titled Flammable Liquid Operations and Data Sheet 7-83 Drainage Systems for Flammable Liquids (all available free, on-line at www.fmglobaldatasheets.com).

Intermediate bulk containers – “why all the fuss?”

Intermediate Bulk Containers (IBCs) increasingly are being used to handle various liquids, including those that are ignitable such as inks and solutions used in the printing industry. The cause of this more frequent usage is twofold: not only has it become more economical to order liquids in bulk, but larger quantities in one container offer the convenience of less frequent ordering, storage and movement of containers.

The U.S. Department of Transportation (DOT) and the United Nations define IBCs as rigid or flexible portable packaging, other than cylinders or



Bio-ex
Advanced Quality

Bio-Ex is a manufacturer of
**a complete range of synthetic & proteinic
fire-fighting foams**

Hi-Ex, AFFF, Alcohol Resistant, Class A and
Fluorine Free Foams (100% bio-degradable).

**Approved to
EN 1568**

BIO-EX S.A. - Z.I. La Petite Olivière - 69770 Montrottier - FRANCE
Tél. +33 (0)4.74.70.23.81 - Fax +33 (0)4.74.70.23.94 - export@bio-ex.fr

www.bio-ex.com

FIRE RAY®

Optical Beam Smoke Detectors



- Low cost protection of large areas
- Easy Installation and low maintenance
- Worldwide approvals
- Over 600,000 installations worldwide
- Variety of models for all applications

A range of accessories are available:-



FIRE RAY® - The leading light in smoke detectors

Hotels around the world protected by FIRE RAY®



**FIRE
FIGHTING
ENTERPRISES**

9 Hunting Gate, Hitchin
Hertfordshire SG4 0TJ

T +44 (0) 1462 444740

F +44 (0) 1462 444789

E sales@ffeuk.com

W www.ffeuk.com

portable tanks, designed for mechanical handling and measuring with a capacity of between 119 and 793 gal. (450 and 3,000 lit.). They may be constructed of any single material (e.g., metal or plastic) or a combination of materials (e.g., a composite of metal and plastic) capable of passing the requisite performance test criteria. Composite IBCs are those constructed of a combination of materials. IBCs also include containers referred to as portable or tote tanks.

Despite the undeniable advantages of using IBCs, awareness of the hazard they may present to your facility is crucial. It is, after all, inherently hazardous to fill a plastic or metal IBC with an ignitable liquid, given the potential for release of that liquid in large quantities. If ignited, a large pool of flammable liquid will create a severe fire exposure that puts your facility at significant risk of a major loss. For example, the release from a single 1,000 lit. container can form a 25 m diameter pool covering a surface area of some 500 sq m. That's large enough to run under multiple sections of adjacent printing presses and which if ignited by any of the many potential ignitions sources, will result in a fast-spreading fire scenario far beyond

used or housed in main production areas. Instead, they should preferably be placed in detached buildings, located at a safe distance, and provided with adequate drainage and containment systems.

Training is essential

Employee training is absolutely essential in order for all of the above measures to work successfully to prevent a major flammable liquid fire in your facility. The types of programmes that should be considered are:

- Overall impact of a flammable liquid leak from processing equipment or storage containers.
- All new and existing hazardous processes.
- Step-by-step procedures for carrying out a process, including initial startup, normal operation, temporary conditions, emergency operations (including shutdowns), normal shutdowns, and startups following outages.
- Mechanical integrity. Employees are shown how to maintain mechanical integrity of process equipment to ensure flammable or toxic materials do not escape from equipment. They are also trained in methods to minimise ignition sources.

FM Global's advice on such containers can be found in its Data Sheet 7-29 titled Flammable Liquid Storage in Portable Containers (available on line). In summary, they should not be used or housed in main production areas. Instead, they should preferably be placed in detached buildings, located at a safe distance, and provided with adequate drainage and containment systems.

the design capabilities of the sprinkler system and floor drainage provided in a typical printing press room.

This already challenging scenario is likely to be greatly compounded if additional plastic IBC containers with ignitable liquids are present which when fire-exposed, would cause their failure and the release of their contents which will contribute to further major fire spread.

FM Global and other organisations such as the UK HSE continue to conduct and invest in significant research into the fire hazards posed by these containers (e.g. see: www.hse.gov.uk/research/rrpdf/rr564.pdf). While FM Global has found plastic IBCs containing ignitable liquids with flash points over 260°C (e.g. certain vegetable oils) can, under certain conditions, be used in a typical production building, for all other fluids with lower flash points, there are no proven, practical protection solutions which can prevent the release of their contents. This remains a significant challenge with work on-going to find possible solutions.

For now, FM Global's advice on such containers can be found in its Data Sheet 7-29 titled Flammable Liquid Storage in Portable Containers (available on line). In summary, they should not be

- Managing change. Changes in storage arrangements or processes must be identified and reviewed before they are implemented.
- Incident investigation. All incidents including major accidents and near misses must be investigated within a specified time. A system must be established to assure compliance with recommendations from the investigation.
- Ongoing training. All employees who handle flammable liquids should have regular training and updates in business changes or new requirements that could affect handling or storage.

Conclusion

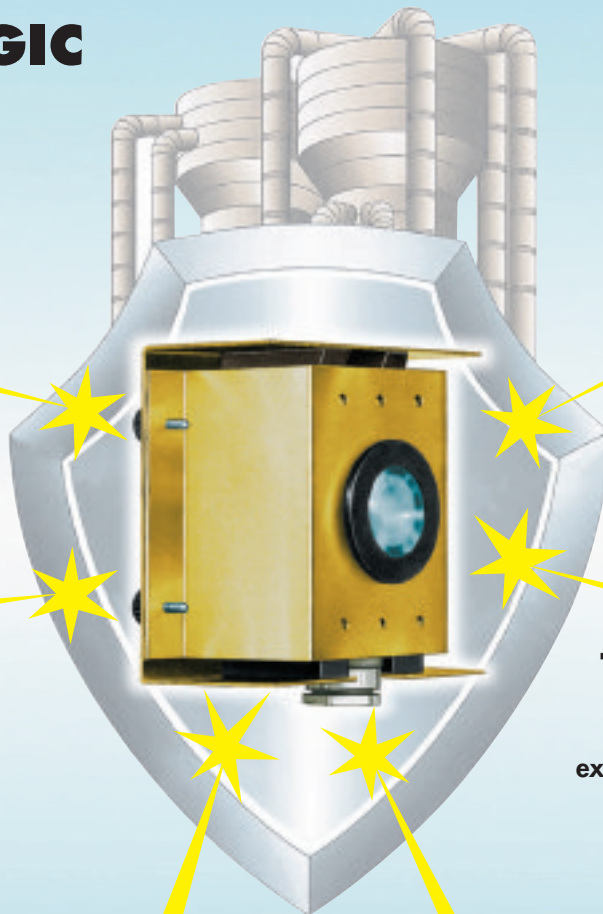
In conclusion, well-designed measures couple with adequately trained employees can control the very significant fire hazard posed by flammable or ignitable liquids. Employees should be well-versed in safe handling procedures and know-how to control potential ignition sources. They should be continually updated on changes and involved with management in pre-fire planning and spill response programmes. These employees will be empowered to take prompt, corrective action as needed to minimise flammable liquid hazards and prevent losses.

APF

FM Global is a leading commercial and industrial property insurance company and risk management specialist. If you have comments or questions on this article, please contact the author, Brendan MacGrath, Manager, International Codes & Standards Group at email: brendan.macgrath@fmglobal.com or Tel: +33.1.46.93.97.00

CONTROL LOGIC Spark detector

designed for
dust collection
systems
to protect
storage silos
from the risk
of fire.



Sparks fly at high speed.

They travel at a hundred kilometres per hour along the ducts of the dust collection system and reach the silo in less than three seconds

The CONTROL LOGIC SPARK DETECTOR

is faster than the sparks themselves. It detects them with its highly sensitive infrared sensor, intercepts and extinguishes them in a flash. It needs no periodic inspection.

The CONTROL LOGIC system is designed for "total supervision". It verifies that sparks have been extinguished, gives prompt warning of any malfunction and, if needed, cuts off the duct and stops the fan.

ISO 9001

20137 Milano - Via Ennio, 25 - Italy
Tel.: + 39 02 5410 0818 - Fax + 39 02 5410 0764
E-mail: controllogic@controllogic.it - Web: www.controllogic.it



CONTROL LOGIC s.r.l.



IR FLAME DETECTOR
RIV-601/FA
EXPLOSIONPROOF
ENCLOSURE

For industrial applications indoors or outdoors where there is a risk of explosion and where the explosionproof protection is required. One detector can monitor a vast area and responds immediately to the fire, yet of small size.

BETTER TO KNOW IT BEFORE

Eye is faster than nose.

In the event of live fire the IR FLAME DETECTOR responds immediately

CONTROL LOGIC IR FLAME DETECTOR

the fastest and most effective fire alarm device
for industrial applications

Also for
RS485 two-wire serial line



IR FLAME DETECTOR
RIV-601/F
WATERTIGHT
IP 65 ENCLOSURE

For industrial applications indoors or outdoors where fire can spread out rapidly due to the presence of highly inflammable materials, and where vast premises need an optical detector with a great sensitivity and large field of view.

ISO 9001

20137 Milano - Via Ennio, 25 - Italy
Tel.: + 39 02 5410 0818 - Fax + 39 02 5410 0764
E-mail: controllogic@controllogic.it - Web: www.controllogic.it



CONTROL LOGIC s.r.l.

Making firefighting **safer!**



PAB Personal Protective Equipment

firefight series

Made of
composite fiberglass

FIRE HT 04 Composite

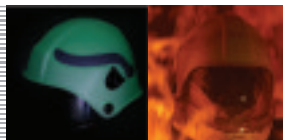
We are introducing the firefighter helmet of tomorrow. It is designed to protect the head in the most extreme conditions. Development and implementation of new composite technology in combination with established design enable full protection even at shorter (flash over flames) temperature exposures, reaching up to 1000 °C. These advantages are rounded up with extreme lightweight (1.200 g) and such design that supports a wide selection of compatible accessories. Structural firefighting has never been safer.



PAB Personal Protective Equipment
Most 26, 52420 Buzet – Croatia

tel: +385 52 662 662
fax: +385 52 662 254

info@pab-buzet.com
www.pab-buzet.com



Operate pump at slight engine revs



Mass Decontamination

**By Simon
McNamara**

Deputy Fire & Resilience
Coordinator, FRS
National Resilience
Assurance Team

Amongst the various large scale terrorist attacks of the last decade and a half, terrorist organisations have shown themselves willing to use chemical, biological and radiological weapons. In 1995 Aum Shinrikyo members attacked the Tokyo subway with Sarin gas and in 2001 anthrax spores were sent to American politicians through the post.

Alongside the police and security services attempts to prevent further attacks must be the simultaneous preparation by the emergency services and civil defence organisations to mitigate the consequences of any such attack should it succeed. Mass decontamination will be one of the key elements in many response scenarios.

Many countries are proactively developing their mass decontamination capability. In some cases this involves decontamination equipment being kept at sites of probable risk, an example of which is the units bought by the company that runs Los Angeles and Ontario airports. In the majority of countries though, specialist mass decontamination units are provided to the Fire and Rescue Services or military/paramilitary organisations that respond to major emergencies. These units are then stationed in strategic locations; either geographically or on a risk based approach.

The specialist decontamination units are usually trailer or tent based structures containing shower systems, with disrobe and robe areas attached to provide some level of privacy for the people being decontaminated. These systems can usually

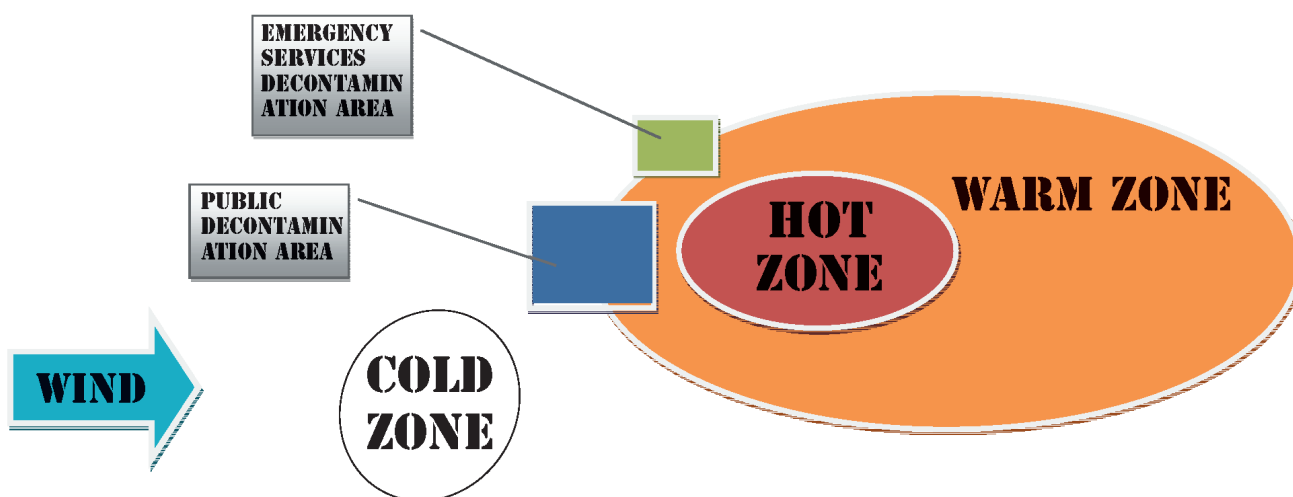
process anywhere from a couple of dozen people an hour to several hundred people an hour.

There is still a place for the interim or emergency mass decontamination techniques. Many Fire and Rescue Services in countries haven't benefitted from the same level of investment in specialist equipment. Even in those countries that have invested, in most major emergencies it will still fall to the frontline fire appliances to undertake interim or emergency decontamination measures while the specialist units are mobilised to the incident and set up.

Decontamination process

Stage 1

Mass decontamination is best described as a multi stage process. Stage one is an assessment of the situation. In accordance with their standard operating procedures, the first responding crews must assess the scene, gathering information on numbers of people affected and any signs and symptoms being displayed by those people who have been exposed. This will inform the incident



commander's decision on whether mass decontamination is required, what level of resources are required to deal with the incident and what safe systems of work must be put in place to ensure the safety of the emergency responders.

This will include the setting up of Hot, Warm and Cold zones, leading people upwind, away from the scene, into a decontamination corridor. between two fire appliances where hose lines suspended from ladders stretching between the two vehicles can be used as make shift showers, delivering low pressure high volume water. The setting up of this arrangement should take place in tandem with the start of the second stage.

Stage 2

In the second stage the responding crews need to establish control over the casualties. This may involve directing the casualties away from the source of contamination (the Hot Zone) to an upwind location where they can be more safely dealt with (the Warm Zone).

The extent to which casualties are affected will vary from quite severe contamination through to people who could be considered to be the "worried well" who think they may have been contaminated but are showing no signs or symptoms of exposure. If the numbers of people affected are very large then an initial triage may be

required so that the most seriously affected people are dealt with first.

Stage 3

There are three guiding principles that influence mass decontamination techniques. The first of these principles is that disrobing the affected people will remove approximately 80% of solid or liquid contamination and more if it is a vapour contaminant.

In stage three, casualties should be instructed to remove their clothes down to their underwear prior to entering the decontamination corridor. They should also be instructed that whilst under the water they should gently rub themselves all over, starting at the head and working down the body as this will improve the efficiency of the water in removing any contaminants on the skin.

If resources and time allow then temporary screening should be erected to allow for some dignity during the disrobing procedure but it is important that the disrobing of contaminated casualties is not delayed by waiting for things to be set up. The degree to which a person is affected by exposure to nerve and blister agent is governed by the amount of the substance they come into contact with and the duration of that contact.



Position appliances in opposite direction



SARATOGA®

Protecting the Protectors

FIRST CHOICE FOR FIRST RESPONDERS

The most sophisticated military, law enforcement, civil defence and counter terrorism units around the world trust only one CBRN protective system

The others just keep their fingers crossed and hope that nothing ever happens

Blücher GmbH Bluecher UK Ltd
phone +49 211 9244 0 +44 1507 451 443 phone
fax +49 211 9244 211 +44 1507 451 0940 fax
info@bluecher.com info@bluecher.com
www.bluecher.com www.bluecher.com

The International FIRE & EMERGENCY TRAINING LEADER




TRAIN ■ SERVE ■ RESPOND

TEEX trains emergency response personnel from more than 45 countries each year. Each course can be tailored to meet your exact needs in a variety of areas.

- Municipal / Industrial Firefighting
- Industrial Emergency Response Specialist
- Hazardous Materials Response
- Search & Rescue / USAR
- Aircraft Rescue & Firefighting
- Fire & EMS Leadership
- Fire Officer / Instructor
- Marine - Shipboard Firefighting
- Oil Spill Response
- Emergency Medical Service
- Emergency Management / NIMS
- Incident Command
- LNG Emergency Response
- Assessment / Technical Assistance

Schedule these or any of our 130+ courses today.
www.teex.org/fire • 1.866.878.8900

TEEX TEXAS ENGINEERING EXTENSION SERVICE
A Member of The Texas A&M University System
361 Texas • College Station, TX 77843-7696



*Position staggered
salvage sheets for exit*



In most countries it is a highly unusual act to undress in public in front of strangers, and this requirement will also be in conflict with some peoples religious and cultural beliefs. It may be necessary for the incident commander to seek assistance from community leaders to reassure the casualties about the process.

The police will be involved in cordon control in mass decontamination operations but they and the security services are also likely to view any incident as a potential criminal and/or terrorist act until proven otherwise. This means they are likely to seize the discarded clothing and personal belongings from casualties and they may also wish to video or photograph casualties before they disrobe in order to identify any possible perpetrators who are hiding in the crowd.

Stage 4

Stage four is the processing of the casualties through the decontamination corridor where they are drenched with water from the hose lines. This is based on the second guiding principle is that, unless there is information to the contrary, water or a mild detergent solution is the most effective cleansing technique for dealing with large numbers of contaminated or potentially contaminated people. Though it is important that the initial emergency decontamination should not be delayed while a soap or detergent solution is made.

If an emulsifying solution is required to remove oily deposits as found with some chemical agents then the initial water based decontamination process should be followed up with a secondary decontamination as soon as a weak detergent solution or liquid soap is available.

This technique of makeshift showers has its drawbacks. Apart from the dignity issues mentioned earlier, a bigger hazard may be the water and ambient air temperature at the scene. The old and very young will be most vulnerable to the effects of cold.

Once the system is up and running then attention should be paid to what is happening to the run off from the decontamination process. Not only will the wash waters cause environmental damage but there is also the possibility that the run-off will enter nearby watercourses which will pose a hazard to downstream abstractors.

Stage 5

The final stage of the process is to arrange onward care and medical treatment for the casualties as required. In all cases casualties should be monitored for persistent contamination or delayed symptoms from their exposure. Arrangements will need to be made to provide some level of clothing to casualties before their onward transportation to hospital or temporary rest centre.

Experience from exercises in the United Kingdom has shown that the development of the technical skills in how to carry out mass decontamination is relatively simple and straight forward. A more significant challenge is training people to successfully manage the decontamination process as a whole, to gain control of a large number of casualties and efficiently process them through a decontamination corridor or shower structures.

The recognition primed decision making model is one of the theories used to explain how emergency services commanders use a blend of knowledge and past experience to rapidly assess a situation and decide on the most appropriate tactics to use to resolve the incident. For the majority of Fire & Rescue Service commanders faced with a mass decontamination incident, it will be the first time they have experienced that kind of incident and as such will not have the past experience to fall back on to suggest what tactics to use, this makes exercising opportunities all the more valuable in creating some of those past experiences.

The incident commander will still be forced to make tough decisions as in the early stages of the response there will be insufficient resources to attend to all the casualties that require assistance. The third guiding principle of mass decontamination is that responders must use their resources to achieve the greatest benefit for the most number of people. An example of this is that non-ambulant casualties are more time consuming to decontaminate. In order to maximise the number of people being treated a decision would probably be made to concentrate efforts on casualties capable of walking until sufficient resources are on scene to be able to deal with the non-ambulant as well.

Another feature of working on mass decontamination is the lack documented evidence from previous experience. Whilst there have been many simulations and exercises around the world to test the mass decontamination response, there has fortunately been very rare need to put it into practice for real. The topic of terrorism and information on it is often quite opaque and in particular the planned response to it is necessarily shrouded in secrecy.

Finally it is worth reflecting on the fact that the majority of the recent terrorist attacks have not just been single incidents but simultaneous attacks against multiple attacks. The Tokyo subway attacks, September 11th, the Madrid train bombings and the London Underground suicide bombings to name a few all had multiple attacks so we should be prepared for running mass decontamination operations in several locations simultaneously. Nor should we forget from the Irish bombing campaign and the Madrid bombings that the terrorists may revert to secondary devices instead of or as well as simultaneous primary attacks.

ULTRA SMALL, SUPER LIGHTWEIGHT.

eclipse™

A THERMAL IMAGER FOR EVERY
FIREFIGHTER IS NOW A REALITY.

With Eclipse, each firefighter can have his or her own thermal
imager. Eclipse makes it affordable to outfit your entire crew.

Another innovation from the leader in thermal imaging.
And as always, built Bullard Tough™.

www.bullard.com



Bullard Asia Pacific Pte. Ltd.

LHK Building

701, Sines Drive, #04-03 • Singapore 387383

Tel: +65-6745-6554 • Fax: +65-6745-5176

E-mail: bullardasia@bullard.com



SKR

providing Asia's fire services with the best equipment

S. K. Rosenbauer Pte Ltd, 8 Tuas Drive 2, Singapore 638643
Fax +65 68620273 sales@skrosenbauer.com

www.skrosenbauer.com

Spanning the Globe

ONE STOP SHOP - Pumps, Trucks, Equipment, CAFS, Water Purification Systems, Tactical Gear...



For over 100 years Darley has remained a family owned and operated business. Darley is easy to work with and has extensive worldwide experience. Dealer Inquiries Welcome. Trust us with your next order.

edarley.com



DARLEY • TRUSTED WORLDWIDE SINCE 1908

325 SPRING LAKE DR. • ITASCA, IL 60143 USA • 630-735-3500 • www.darley.com • www.edarley.com



Truck Specifications Around the World

With an Interview with Peter Darley

By Michael C. Ruthy, PE

Vice President of Engineering, Pump Division
W.S. Darley and Company

Specifying the right equipment for your locality's needs is a cry I've been preaching for years. In some countries, such as China, and New Zealand, the Fire Service is a nationalized entity, and communities are relegated to purchasing standardized equipment. There is economic sense to this as the combined purchasing power can be economically beneficial to both the buyer and the builder.

In the wildland areas of the US west, there are several vehicle classes that provide different service needs, for instance. This allows the local jurisdiction to select from a variety of types of trucks, between a number of different builders, and know that they're going to get, at a minimum, a truck that meets their standard.

What the minimum standard should be for a truck is debatable in many parts of the world. In the US the defacto standard is NFPA 1901 or NFPA 1906, or one of the US Forestry standards (the Blue Book). In the US, these are the standards everyone invokes as a minimum standard. Usually, departments like to customize their vehicles from there, to the needs of their own local areas.

Outside the US and other countries like Australia and New Zealand, the specifications for trucks are less standardized. China, for one, just instituted their first national standard a few years ago. I thoroughly respect the peer reviewed

standards process that takes place in the US, as it combines all interests in its efforts. I sit on the technical committee for several NFPA documents and it's always interesting to hear the arguments for and against certain features. Peter Darley sits on this committee with me, and he has a lot more experience with truck specifications, so I thought I'd get his input for this article.

APF: Mr. Darley, can you explain to our readers your background regarding truck specifications, especially international ones?

Darley: I worked at Darley for over 30 years and I have been involved in truck sales for most of that time. Since the 1940's, Darley has worked with a variety of fire departments around the world. In some cases we work through a representative and in some cases we work directly with the end user. In either case, we are directly involved with trying to make sure that the specifications and end product are right for the end user.



APF: So you've seen a lot of spec's. What's the most important part about writing a specification?

Darley: From a customer's perspective, it should be all about procuring apparatus that is right for the job at the best value.

APF: How much detail should be in a specification?

Darley: A buyer can require that a vehicle must meet a certain standard such as NFPA 1901 standard, and then also provide the special feature and performance requirements above and beyond that standard, and in this case they may end up with a fairly brief specification. Because they have invoked the 1901 requirements, it would ensure that the manufacture is meeting a lot of minimum requirements. The current 2009, 1901 standard is almost 200 pages and so it covers a lot of criteria to ensure that the end user would at least be buying apparatus that is designed with the latest safety and performance standards.

APF: What's the shortest and longest specification you've ever seen for a complete truck?

Darley: I have a 1 page spec on my desk right now for a fire department in the Mideast for 2 specialized trucks. This is a case where the buyer did not provide enough information and so it could be an interesting process for them to ensure that they end up with the right trucks. At the opposite end of things, we have seen specs over 200 pages, invoking standards and regulations that we have never heard of – these specs usually end up in the circular file.

APF: How does the specification process work in different parts of the world? Take China for instance, since you do a lot of business there.

Darley: In the US, spec writing processes can differ greatly from city to city, and the same is true from an international perspective. China has departments with diverse needs and diverse

procurement requirements, but they will also have an expectation for a supplier to at least meet a minimum standard for quality, safety and performance.

APF: How involved should the builders of emergency vehicles be with the creation of specifications? Some say it's a conflict of interest and others say the builders are the experts.

Darley: Buyers should look to outside experts in addition to their own inside experts. This should include visiting other fire departments that may have recently purchased apparatus or in some cases asking manufacturers to set up demonstrations. Care should be taken that the buyer doesn't inadvertently end up with specifications that prevents them from achieving what should be their primary goal – ending up with the best value. Often, specifications that are tightly written around a specific manufacturer can limit choices, which may not be what was really intended.

APF: For the US market, many departments form a committee to assess their area's needs. Who do you think should be involved in such a committee?

Darley: Drivers, operators, training, safety and maintenance personnel. Whoever is on the committee should be communicating and surveying others within their departments for ideas as well. The committee should also be communicating with the purchasing people to ensure that there aren't any surprises from a budgeting standpoint.

APF: How about outside the US. Who generally prepares specifications?

Darley: Again, like in the US, the process and make up of the committees will differ, but I think that a typical process overseas would be similar to a typical process in the US.

APF: What are the biggest differences between truck specifications in the countries where you do business?

Darley: Sometimes language can be the first hurdle. You have to make sure that everything is properly translated as we know even just communicating with the English language can be tricky. We often have to convert performance into metric as overseas customers often will use metrics as their reference point. We always want to make sure that we understand as much as possible about a new customer to avoid surprises about fittings, expected standards for loose equipment, equipment mounting, supplying the right spares, etc. There are a lot of trucks built for fire departments in the US that are just monsters from a size perspective. In general we probably see smaller vehicles with smaller engine and pump performance requirements overseas as compared with the US. There a lot of differences as to where equipment gets carried – for example most engines in the US carry hose in the upper hose beds and often that same hose is carried in the side "lockers" for departments outside the US.

APF: Where do you see for the future as far as specifications go?

Darley: Maybe someday there will be true international vehicle standards. Right now builders in the US look to the DOT requirements while builders in Europe may look to ECU requirements. It can and will get a little messier with new engine emission regulations. At the end of the day though, the buyer should follow a purchasing process that enables them to procure the product and support package that best meets their needs.

APF

ARFF-fleet ready for airports

ZIEGLER Z 8



Part of actual ARFFs at Munich International Airport.

ZIEGLER Z 8 is based on the most modern technology and offers tailor-made solutions for all kinds of airports. New: total height with embedded 20 m Snozzle telescopic boom now only 3.800 mm.



we provide safety

Albert Ziegler GmbH & Co. KG • MANUFACTURERS
OF FIRE SERVICE VEHICLES, PUMPS AND HOSES

P. O. Box 16 80 • 89531 Giengen • Germany
Memminger Str. 28 • 89537 Giengen • Germany
Phone: +49 7322 951 0 • Fax +49 7322 951 464
E-Mail: export@ziegler.de
www.ziegler.de



Quic-Lock SCBA Bracket
Model: QLM-U

For over 45 years ZICO has been providing the fire service with quality products and dependable service. We stand behind all of our products and are constantly improving existing ones to ensure customer satisfaction. When the name ZICO or ZIAMATIC appears on a product you can be assured of a top quality product at a reasonable price...backed by extensive field testing.

ZICO

Complete line of
halligan bars



**Quic-Hold
Mechanical
SCBA Bracket**



**Quic-Draft
Floating
Strainers**



**Quic-Draft
Suction Strainers**



Vehicle Fires - Stopping Them In Their Tracks

By Nick Grant

EMEA General Manager,
Firetrace International

A vehicle fire can swiftly result in considerable financial loss and pose a serious threat to the lives of the vehicle occupants. They need to be stopped in their tracks, as Nick Grant explains.

Vehicle fires are far more common than many of us realise. They can – especially on passenger-carrying buses and coaches – have a devastating life-threatening impact. Fire can cost the off-highway vehicle owner a great deal of money, and jeopardise the company's ability to continue to provide the level of service to which it is contractually committed. The latest figures speak for themselves.

While the most detailed documented research applies to the USA, it is surely reasonable to presume that the findings are replicated around the world. US research shows, for example, that during 2006, US fire departments responded to an estimated 278,000 on-highway vehicle fires involving cars, trucks and recreational vehicles, around 70 percent of which were passenger-carrying. These fires caused an estimated 490 deaths, 1,200 injuries and cost \$1.3 billion in direct property damage. In fact, according to estimates based on a US Department of Homeland Security NFIRS

(National Fire Incident Reporting System) and NFPA (National Fire Protection Association) survey, between 2002 and 2005 highway vehicle fires accounted for 18 percent of all reported fires in the USA.

While off-highway commercial vehicle and heavy equipment fires are numerically fewer than for on-highway vehicles, the potential for financial loss is often substantially greater. Construction and agricultural equipment – such as log haulers, harvesters, excavators, shovels, draglines, haul trucks and wheeled loaders – costs hundreds of thousands of dollars. They can also take months to replace and their severe damage or destruction can have a serious detrimental impact on project timescales. Statistics show that agricultural equipment such as balers and choppers are most at risk, accounting for 43 percent of off-highway vehicle and equipment fires, followed by construction vehicles, then industrial loaders, fork-lift trucks and stackers.



The heart of the matter

The common thread that links all of these vehicles, again according to the findings of NFIRS/NFPA, is that mechanical and electrical failures or malfunctions account for the majority of fires – around 60 percent in the case of off-highway equipment, rising to 75 percent for on-highway vehicles. The most common location for the outbreak of a fire – in something like 60 percent of the cases – is in or around the engine compartment, the running gear or wheel areas.

The conclusion that can be reasonably drawn from these figures is, therefore, that these are the areas most in need of detection and suppression and where investment in fire safety measures are likely to have the greatest payback. However, the real nature of the fire hazard has to be taken into account if the detection and suppression solution is to offer the maximum protection.

In addition to the vehicle's fuel and the risk of fuel line ruptures, there are any number of flammable liquids present throughout any engine compartment. These include hydraulic, brake, automatic transmission and power steering fluids, plus combustible accumulated grease on the engine block, for which provided or damaged electrical wiring can easily provide the ignition source. However, some combustible materials are vehicle or equipment specific. These include agricultural crops that, surprisingly perhaps, account for around 15 percent of the items first ignited in a fire, together with grass, sawdust and wood chippings.

Targeted protection

While these risks can be lessened by regular and diligent maintenance and cleaning, engine fires will remain a constant threat and effective engine compartment fire detection and suppression is clearly the only dependable means of ensuring that a minor fire does not escalate quickly into a destructive conflagration.

The dynamics of the airflow in and around an engine compartment when a vehicle is in motion can seriously impair the performance and reliability of traditional detection and suppression techniques such as fusible link systems. This is because heat

and flame that typically rise from the source of a fire may be propelled away from the location of the fusible link by the motion of the vehicle, delaying its activation. The inevitable build-up of dirt in and around engines, vibration and intense temperature variations are also factors that are known to cause traditional detection and suppression systems to fail to provide the essential fast and accurate fire detection and suppression.

So, to be truly effective, a vehicle fire protection system needs to have a number of characteristics. It must be able to deal with the problem of airflow, react immediately a fire breaks out and suppress it before it has any opportunity to spread. The solution must also be effective on every type of fire risk that is likely to be present, be able to withstand harsh dust-laden environments, contend with extreme ambient temperatures, and stand up to intense vibration.

Fast response

Firetrace International's response to these challenges is called FIRETRACE®. It is an automatic, self-seeking fire extinguishing system; one that requires no power source and comprises an extinguishing agent cylinder that is attached to polymer tubing via a custom-engineered valve. This proprietary Firetrace Detection Tubing is a linear pneumatic heat and flame detector that is immune to the vibration, shocks and temperature extremes found in engine and generator compartments. It was specially developed to deliver the desired temperature-sensitive detection and delivery characteristics in even the harshest of environments.

This leak-resistant tubing is routed throughout the engine compartment. Immediately a fire is detected, the tubing ruptures and automatically releases the suppression agent, extinguishing the fire precisely where it starts and before it can take hold. The tubing is placed both above and behind the potential source of the fire to ensure that the airflow actually helps by directing the heat and flames towards the tubing, providing faster and more reliable detection and suppression in moving vehicles. Depending on the particular FIRETRACE system that is chosen – either Direct Release or

ONLY FIRETRACE IS FIRETRACE

OTHER TUBE-BASED SYSTEMS
CLAIM TO BE LIKE FIRETRACE.
THEY ARE NOT.



**INSIST ON GENUINE
FIRETRACE SYSTEMS
FOR PROVEN FIRE
SUPPRESSION.**

+ Only FIRETRACE INTERNATIONAL Systems offer the extensively tested Firetrace brand solutions with listings and approvals from CE, FM, UL, ULC and more than 25 other international agencies on agents such as Dupont FM-200, 3M Novec 1230, CO₂ and ABC dry chemical.[†]

+ Only FIRETRACE INTERNATIONAL has 20 years of experience with more than 65,000 systems protecting equipment worldwide

+ Only Genuine FIRETRACE SYSTEMS have the tested and proven reliability you and your customers require

Never compromise your reputation by using impostor, untested and unapproved systems – be sure you are using genuine Firetrace.

FIRETRACE®
AUTOMATIC FIRE SUPPRESSION SYSTEMS

Call +44 (0) 1293 780390 (Europe, Middle East, Africa)
or +1 480 607 1218 (US and elsewhere) or e-mail info@firetrace.com
to see why Firetrace is the right solution for your fire protection needs.

www.firetrace.com
www.firetrace.eu



Firetrace® is a registered trademark of Firetrace USA, LLC / Firetrace Ltd. All unauthorized uses of the Firetrace trademark shall be prosecuted to the fullest extent permitted by the law.

[†] Listings and Approvals vary by system and agent.



Indirect Release – the suppression agent also flows through the delivery tubing to the front of the engine, again working with the airflow to flood the entire compartment.

The Direct Release System utilises the Firetrace Detection Tubing as both the detection device and the suppressant delivery system. If a fire breaks out, the tube ruptures nearest the point where the most heat is detected, forming an effective spray nozzle that releases the entire contents of the cylinder to suppress the fire. The Indirect Release System uses the tube as a detection and system activation device, but not for the agent discharge. The rupturing of the tube results in a drop of pressure causing the indirect valve to activate. This diverts flow from the detection tube and the agent is discharged from the cylinder through diffuser nozzles, flooding the entire engine compartment.

All FIRETRACE systems are available with a manual release or an “alert” signal light and a horn that can be mounted on the operator’s dashboard or control panel.

Agent selection

The FIRETRACE extinguishing agent cylinder is usually mounted inside the engine compartment and choosing the correct agent is vitally important. While the vehicle’s fuel is a Class B fire risk, carbonaceous debris around the engine, such as leaves, straw, and crop residue, is a Class A hazard, plus there is the potential for European Class C fire risks involving flammable gases to be present (in the USA the European Classes B and C are combined into a single Class B category). This precludes the use of some suppression agents for these applications; indeed, it rules out some tube-based systems that rely solely on the use of CO₂, which is suitable only for European Class B fires.

While clean agents such as DuPont™ FM200® gaseous suppression agent or 3M™ Novec™ 1230 Fire Suppression Fluid have the essential firefighting characteristics that the hazards demand, ABC dry chemical suppressant is by far the most appropriate choice for these applications as it is ideal for all three classes of fire.

Advocates of watermist systems often contend that dry chemical powders are corrosive. However, the powder particles are of such a size that they will not penetrate the engine, turbocharger or air filter, and it is recommended that, after agent discharge, the affected compartment is jet washed or compressed air cleaned to remove any powder residue. In reality, such is the reliability of the FIRETRACE system that this clean-up only has to take place after a justifiable discharge that occurs when a fire breaks out.

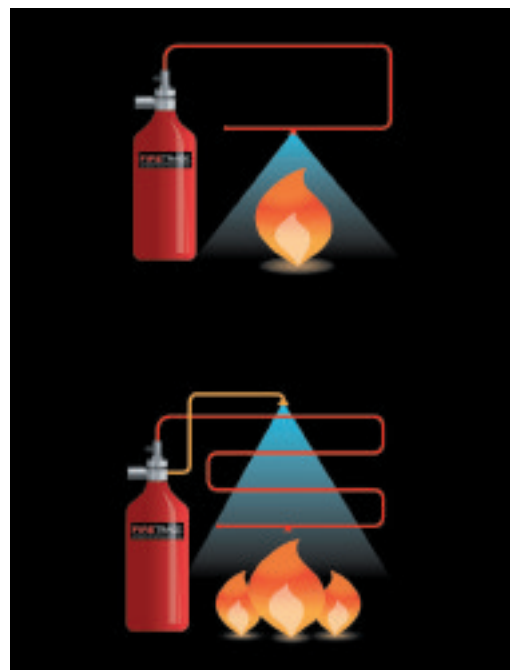
By comparison, watermist systems are prone to leaking and accidental discharge and have to incorporate antifreeze in order to operate in all climatic conditions. Antifreeze is a combustible liquid that is itself a corrosive substance.

Solution reliability

If an engine compartment fire is allowed to take hold the likelihood is that the entire vehicle will be destroyed. So, while selecting the right type of detection and suppression system is important, so too is ensuring that it has the verifiable endorsement of internationally renowned and independent accreditation and approvals agencies. Top among these for any application are UL (Underwriters Laboratories), FM (Factory Mutual), CE (Conformité Européenne or European Conformity) marking. However, there are also several application-specific approval bodies, such as those for buses and coaches that include the Danish Institute of Fire & Security Technology and the Swedish Fire Protection Association.

Vehicle fires choose their own time and place, and are by no means limited to older vehicles. They are also no respecter of cost-cutting exercises, inappropriate suppression agent selection, or the decision to install a system that does not come with the endorsement of credible approvals and accreditations. Too much is at stake, as the NFIRS/NFPA survey confirms with the finding that in 2004, more people died in vehicle fires than from apartment fires, and vehicle fires caused roughly seven times the number of deaths caused by non-residential structure fires.

APF



Nick Grant is ISO 9001:2008 certified Firetrace International's EMEA General Manager



Follow the virtual leaders.

Our airport crash tenders of the series IMPACT and DRAGON are an overall outstanding class "Ground Staff". With highest mobility chassis, powerful high-torque IVECO engines, extinguishing agents of up to 14,000 litres, powerful pumps and monitors as well as aluminium modular body and equipment compartments system you'll drive it sovereign ahead by every call out.

Interested? Then follow us to: www.iveco-magirus.net

**IVECO
MAGIRUS**
**IVECO
MAGIRUS**
Camiva

IVECO MAGIRUS
Brandschutztechnik GmbH
D-89079 Ulm
magirus@iveco.com

IVECO MAGIRUS
Brandschutztechnik GmbH
A-8301 Kainbach / Graz
lohr@iveco.com

IVECO S.P.A.
Stabilimento Mezzi Speciali
I-25127 Brescia
ivecomezzispeciali-e@iveco.com

IVECO MAGIRUS
Fire Fighting Camiva
F-73230 Saint-Alban-Leyse
contact@camiva.com





ANGUS FIRE

All Firefighters deserve the best

No compromise on safety –
Specify Angus Fire

- Angus **Duraline** Hose
- Angus **Hi-Vol** Hose
- Angus Fire Fighting Foams – Synthetic & Protein-based
- Angus Portable Fire Pumps
- Angus **Hi-Combat** foam-making Uniductors & Branchpipes



UTC Fire & Security
A United Technologies Company

Angus Fire, Thame Park Road, Thame, Oxfordshire OX9 3RT UK

Tel: +44 (0) 1844 265000 Fax: +44 (0) 1844 265156 E-mail: general.enquiries@kiddeuk.co.uk www.angusfire.co.uk

*Angus Titan trailer
mounted 15,000 l/m in
monitor*



Fire fighting monitors

By Michael Mills

Product Manager,
Angus Fire foam
equipment

Monitors spend most of their lives static and lifeless. But when a fire is detected they can often be the only practical way of applying foam or water to the site of the fire.

While simple in principle, monitors are sophisticated pieces of engineering made to deliver a specific performance after long periods of inactivity. Like many engineering challenges the design of a monitor can take many forms depending on the specific risk and the mechanism and method of operation the designer uses to achieve the final layout. When designing a monitor the manufacturer must balance performance, operational life and ease of use against cost.

Mobile or trailer mounted monitors

While many monitors are permanently fixed to pipe work and designed to protect specific installations, it is sometimes more convenient to mount monitors on trailers that can be moved from risk to risk. However, mobile monitors require a water supply, usually by hoses or portable pumps.

The jet reaction force for a portable monitor can vary from a few kg to over a tonne for a larger trailer mounted unit. Any portable monitor must be secured so that it cannot move once the full water flow and pressure is applied.

The mobile monitor can be used to reach areas not covered by fixed monitors or provide cooling

to equipment adjacent to the fire. Larger monitors are usually mounted on trailers fitted with outriggers and water tanks to provide additional weight and stability.

Design is always a compromise

The layout of the pipes that make up a monitor must serve several functions. They must contain the water while allowing the jet to be moved in both the horizontal and vertical planes, they must be strong enough to resist the pressure and reaction forces generated by the water; and they must be strong enough to allow the mounting of additional items such as levers, gearboxes, hydraulic actuators and the nozzle.

Pressure losses

If too much water is forced around too many tight bends there will be an unacceptable pressure loss between the monitor inlet flange and the nozzle. The result will be that the water or foam jet will not travel as far as it should. Some designs use a very compact layout forcing water to turn 90° bends and splitting the water into two paths which meet again at the outlet. While the dual path waterway layout is compact its pressure

Angus Titan hand portable monitor 3,700 l/min



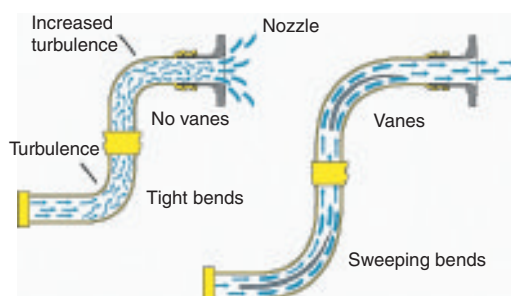
used for control in the vertical and horizontal plains for monitors where the flow is 3,000 l/min or above.

Gearbox actuation

Control of the vertical and horizontal movement using a worm and wheel gearbox is recommended for two reasons. Firstly it is easy for the operator to set the monitor in position. The handle loads are low and control is precise. Secondly a worm and wheel gearbox, if correctly designed, will resist any out of alignment forces.

Provided the worm drive angle is less than 20° it is impossible for the wheel to drive the worm due to friction in the gearing, but it is possible

Monitor type	Pressure loss at 1000 l/min	Typical nozzle throw
Single waterway fabricated stainless steel	0.2 bar (3.0 psi)	38m
Single waterway cast bronze	0.3 bar (4.5 psi)	37m
Dual path waterway cast aluminium	1.0 bar (15 psi)	33m



Vanes in the waterways reduce turbulence

losses can be unacceptable where the supply pressure is limited.

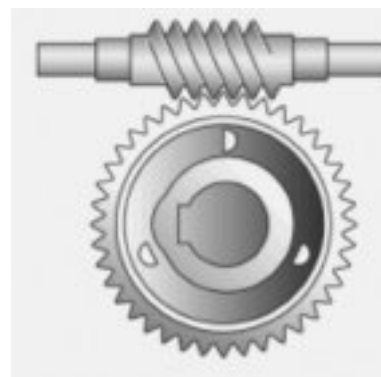
Water negotiating the bends in a pipe takes on a spin. By the time it has negotiated both the horizontal and vertical bends the spin generated can cause a reduction in throw as the spinning water expands the jet stream creating greater friction as it passes through the air. To reduce the spin monitors often have blades cast into the tube to take the spin out of the water stream.

Reaction forces

It is important to arrange the layout of a monitor so that the thrust or reaction force cause by the water leaving the nozzle or foam cannon is directed through the pivot point in both the horizontal and vertical planes.

The forces exerted by the jet are considerable and even a minor misalignment can result in a large side load.

A worm and wheel gearbox drive is generally



Non reversible worm and wheel gearbox to control vertical or horizontal movement

for the worm to drive the wheel. The mechanism is therefore intrinsically safe and any out of balance forces in the monitor cannot move it off target.

Construction

All monitors are made from metal so they can withstand heat and are strong enough to support the reaction forces from the water jet. The materials most commonly used are steel in the form of fabricated tube or cast bronze, but aluminium and cast steel or iron are also used.

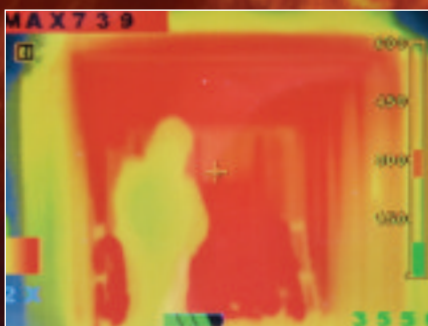
Fabricated steel

High quality steel monitors are normally fabricated from grade SS316 stainless steel. Steel monitors

Nozzle flow at 7 bar	Total reaction force at tip	Typical side force on monitor handle with 5° of misalignment in the horizontal plane
2,000 l/min	140 kg	6 kg
4,000 l/min	240 kg	11 kg
6,000 l/min	310 kg	14 kg
8,000 l/min	425 kg	19 kg

Don't get left in the dark

See the light



The new Eagle 320 Thermal Imaging Camera features a large 10 cm screen with up to 4 x zoom and a variety of temperature indicators to ensure you have the information you need

- Maximum Temperature Indicator
- Large LCD Display with 4x Zoom
- Over 4.5 hour Battery Life
- Ergonomic Multi Positioned Handle

EAGLE™ 320

For further information call Customer Services on: +44 (0) 1695 711711
quoting reference FT0309 or email scott.sales.uk@tycoint.com



SCOTT®
HEALTH & SAFETY

www.scotthealthsafety.com

Material	Nominal pipe size	Flow at 7 bar inlet pressure	Pressure loss
Cast bronze	80mm (3")	4,000 l/min	3.5 bar
Stainless steel	80mm (3")	6,000 l/min	0.9 bar

usually have a larger footprint and are physically higher than cast units because of the limits imposed when bending the tube but with the advantage that the larger radius bends reduce pressure loss.

However, when comparing stainless steel with bronze monitors with similar flow rates bronze units are substantially heavier.

Cast bronze

Typical bronze specification used by Angus Fire for the Titan range of corrosion resistant monitors

Standard	Copper	Lead	Tin	Zinc
CC491K (formerly BS LG2); UNI 7013	85.0%	5.0%	5.0%	5.0%

Material	Nominal pipe size	Flow at 7 bar inlet pressure	Weight
Cast bronze	90mm (3½")	6,500 l/min	76 kg
Stainless steel	80mm (3")	6,000 l/min	35 kg

Low cost monitors or monitors intended for applications where corrosion is not a problem can be fabricated from mild steel tube. The steel is usually galvanised to protect against corrosion, although a painted finish is sometimes used to reduce cost.

Brass tube

Brass tube is the weakest of all fabrication materials used for monitors and it is limited in size because it is not strong enough to resist the reaction forces from large water jets.

While cast bronze monitors are heavier and generate greater pressure losses for a given nominal pipe diameter they are usually more compact and robust than fabricated steel units. There is a wide range of materials which are called "bronze" and it is important to determine the specification of the material used when judging strength and corrosion resistance.

Nearly all cast bronze monitors use double race bearings incorporating steel balls for the horizontal and vertical joints. If the bearing is carefully designed to spread the load and if the bronze is

**Extraordinary
spreading width**
performance Line

820 mm



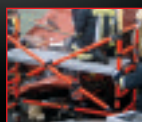
available
with Mono Coupling



Rescue Tools



Power Units



Rescue Platform



Stabilisation



Lifting Bags



Floodlight



LANCIER
Hydraulik

GmbH & Co. KG

www.lancier-hydraulik.de

For more
than 35 Years



Rescue Tools
„Made in Germany“

hard enough it is usual to allow steel balls to run in grooves machined directly into the bronze casting. This layout has the advantage of simplicity and will provide a long life if correctly maintained.

Flanges and material strength

Most monitors are supplied with ANSI flanges which come flat faced (FF) or raised face (RF).

In general steel monitors use steel flanges. These can always be raised face since steel is strong enough not to distort at pressures used in fire fighting. However leaded bronze or gunmetal, with its superior corrosion resistance, is relatively soft and cannot always be used for a raised face flange which in turn can limit its pressure rating. One solution is to increase the thickness of a bronze flange to give it sufficient strength.

Remote actuation

In many applications it is necessary to operate a monitor from a safe distance. To do this motors are fitted to move the monitor body in the horizontal and vertical planes. Remote control monitors will often need to meet the standards for operation in an area subject to explosive gasses such as ATEX in Europe or NFPA in the USA.

Hydraulic drive

Hydraulic motors have the advantage of low cost, simplicity and are usually explosive proof.

Advantages:

- No need to use limit switches on the motors. When they reach the limit of travel they will simply recycle the hydraulic fluid.
- Reliable, low cost and easy to maintain.
- Option of water driven hydraulic power pack means system does not need an electrical supply.

Disadvantages:

- General limited to 150m maximum distance between the monitor and control panel.
- No facility for a secondary panel.
- Difficult to install position indicators.

Electric drive

Electric motors must have a mechanism to stop the current when they reach the limit of travel or they may burn out. Modern positioning encoders and electronic controls are replacing the more traditional overload protection devices.

Advantages:

- Possible to have a master and slave panel arrangement.
- Built in encoders will show monitor position if required.
- Distance between the monitor and master panel is not limited.

Disadvantages:

- Can be expensive if explosive proof motors necessary.
- Secondary panels in an explosive area need to be contained in explosive proof casings.

Hydraulic/electric systems

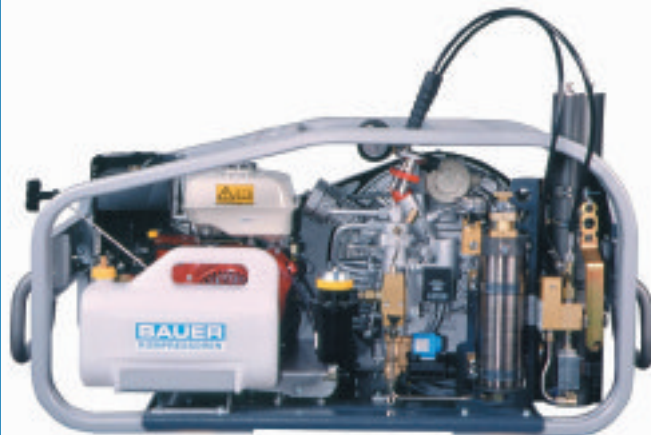
In these the monitor is moved using hydraulic motors but the hydraulic power is provided by individual hydraulic power packs mounted at the base of the monitor. The power packs are generally

BAUER COMPRESSORS



Verticus 5 /KAP 5 stationary compressor

The most advance modular unit system used in fire stations with SPC-compressor control B-CONTROL, P Filter System and integrated filling panel. The unit can be upgraded to a silenced unit VERTICUS 5 type and additional filter housings, refrigeration dryer AIR-KOOL, external filling panels as well as storage cylinders can be easily fitted.



Mariner 250/320

The power pack for larger delivery of air, 250l/min and 320l/min. A newly developed, super-light aluminium chassis guarantees the best protection against corrosion! Inter- and after coolers made of stainless steel resist the toughest climatic conditions. The construction of the motor rocker stand reduces vibration for smooth operation as well as self-tensioning of the v-belt drive.

BAUER offers only Independently Tested Containment Fill Stations which were found to protect the operator from overpressure and fragmentation per NFPA 1901.

Containment Fill Stations – Stationary & Mobile

High-Pressure Breathing Air Compressors and
Auxiliary Equipment
Worldwide Sales and Service Network

BAUER COMPRESSORS ASIA PTE LTD

2 Penjuru Place, #01-05 Penjuru Tech Hub, 608783 Singapore

Tel: +(65) 6271 6271

Fax: +(65) 6272 3345

<http://www.bauergroup.com>

Email: info@bauer-compressors.com.sg



explosive proof. The advantages of this arrangement are that it combines the benefits of using hydraulic motors with the benefits of electrical control panels, retaining the option of a slave panel and no distance limitations between the master panel and the monitor.

Explosive proof panels

It is normal to mount the master electrical panel in a safe area with the secondary panel, near the monitor, contained in an explosive proof enclosure.

Where it is not considered good practice to have an electrical supply to the monitor it is possible to use water pressure to power a Pelton wheel driven hydraulic pump. In this way it is possible to install a remotely controlled monitor which is totally independent of an electrical supply.

Manual override

Well designed remote control monitors will always incorporate a manual override facility to allow full operation if the power fails.

Nozzle and cannon design

Two types of nozzle are generally fitted to monitors. Fog/Jet nozzles can be adjusted to give either a straight jet or a wide spread water fan. Branchpipes or foam cannons are designed for throwing expanded foam and entraining a quantity of air into the stream.

Fog/Jet Nozzles are generally manufactured from brass, bronze or aluminium. The simplest designs are adjusted by hand while hydraulic or electrical actuation is employed for remote control monitors. The design is simple in principle and uses a plunger in the nozzle stream to force the water into a straight stream when the outer casing is extended, and into a wide jet when retracted.

Foam cannons or branchpipes are usually not adjustable and will only provide a straight jet. To generate expanded foam an orifice in the pipe entrance is used to generate a low pressure area and draw air into the foam stream. Foam expansion ratios of up to 8 x are common.

Self-inducing nozzles and branchpipes

For some applications it is convenient to fit the nozzle or branchpipe with an orifice and pick up tube which, when the water is flowing through the nozzle, will suck up foam concentrate from a container near by. The Angus Fire Titan range offers self inducing foam cannons capable of flows up to 15,000 l/min.

Explosion proof rating

Many monitors are sited in areas where flammable liquids or gases are processed, stored or transported and there is a risk of explosion if there is a fire. Specifications normally call for monitor and monitor control systems to be manufactured to international explosion proof standards such as ATEX (ATmosphères EXplosibles) or NEC (National Electrical Code) in the USA.

Most fire fighting equipment will be sited in: "A place in which an explosive atmosphere is likely to occur in normal operation occasionally." These are classed as Zone 1 or Class 1 areas.

ATEX Directive

For gases (and vapours given off by flammable liquids) this represents a Zone 1 area.

Equipment for use in these areas is classified into Groups and Categories.

Zone 1 requires monitors and control equipment to be Group II approved. (Group I is reserved for mining equipment).

Equipment is given a Category depending on the Zone in which it is intended to operate.

USA – Hazardous area classifications

Under the US NEC system areas are firstly given a "Class" location for specific applications. Class 1 covers flammable gases, vapours or liquids. Classes are further subdivided into "Divisions".

ATEX versus NEC

The ATEX system was made mandatory in Europe in July 2003 and reflects a more up to date method of working. It also takes into account a wider range of parameters than the US system.

Jet throw calculations

The distance a jet of water or foam solution will travel is, in theory, simple to calculate. If the flow of water through the monitor, typically in litres/minute, is known and this is divided by the cross sectional area of the nozzle, the speed of the jet can be calculated. If it is assumed that there is no atmospheric drag then the optimal angle for the jet is 45°. For a monitor flow of 6,000 l/min with an effective nozzle orifice diameter of 6 cm, the exit velocity from the nozzle is 35 m/sec. If the nozzle is at an angle of 45° the vertical and horizontal components of the velocity are 25 m/sec. Gravity will slow the jet by 9.8 m/sec for every second the jet is in the air. Therefore the time that will elapse before the vertical jet stream hits the ground is just under 5 seconds (2.5 seconds upwards and 2.5 seconds downwards). During this time the jet will travel horizontally for 5 seconds at 25 m/sec or a theoretical distance of 125m before hitting the ground. However in practice air resistance and other dynamic effects make the actual distance much shorter, typically 50% to 65% of the theoretical distance.

Air resistance

The major influence on jet travel is air resistance. As the water jet leaves the nozzle it breaks up into droplets, each one of which behaves as a small ball travelling through the air. The smaller the droplets, the wider the spread of the jet, the greater the air resistance and the shorter the throw.

How far will the jet travel?

Because the calculation of the jet throw is complex and time consuming Angus Fire have written software to predict the throw of their monitor range. Once the monitor and nozzle or foam cannon is selected it is possible to alter the inlet pressure, angle of the jet, the height of the monitor above ground and the wind speed to find out how far and how high the water or foam jet will travel.

The selection of a monitor to protect a risk is often complicated. There is the choice of material, size and which type of nozzle or foam cannon. For remote control monitors the choices are even larger. Then there is the choice of foam type. In most cases it is best to consult a manufacturer that makes all sizes, types and styles of monitor plus foam and can provide unbiased advice. **APF**

Michael Mills is a Chartered Engineer (CEng), has a degree in Mechanical Engineering from King's College London University (BSc Hons) and is a member of the Institute of Mechanical Engineers (MIMechE). He is Product Manager for Angus Fire foam equipment and specialises in foam and water fire protection systems.

BOOTMAKERS TO THE WORLD

BLACK DIAMOND IS THIRD GENERATION BOOTMAKERS. WE ARE FOCUSED AND PASSIONATE ABOUT MAKING GREAT BOOTS AND PROUD TO BE WORN BY LEADING FIRE DEPARTMENTS AROUND THE WORLD.

THE INDUSTRY'S ONLY NO LINER PULL-OUT

Stock No. 277-0911

Comfort System

Comfort Fit Plus - with Eversole

Boot Height

14 inches

Leather Upper

Black Diamond's Exclusive FireTuff™ Leather

Lining

CROSSTECH® Fabric with Omaha lining is a high performance, wicking fabric, originally developed for aggressive military applications

Lining Construction

"Stroble" boot lining construction for maximum fit

3-Point Heel Lock System

Exclusive 3-Point Heel Lock for Fit & Comfort

Kevlar Lining

Kevlar® lined for maximum protection



Pull-On System
Integrated & reinforced loop pull-on system

Fusion™ Upper

A powerful alloy of solution dye Nomex®/Kevlar® and Teflon® EPPE. Combines the durability of Nomex, the strength and abrasion resistance of Kevlar and water resistance of a patented Teflon EPPE.

Shin-guard Protector

Comfort form-fitting shin-guard provides maximum protection

Steel Toe

Hi 500, Meets or Exceeds ASTM Standards

Steel Midsole

Stainless Steel

Steel Shank

Double Ridged Steel

Toe Cap Protection

Rubber Toe Cap for high-abrasion



Footbed

3 Density Removable PU Orthotic Footbed. Fabric-covered with TPU heel cradle for overtime comfort

Outsole

Proprietary Rubber Comfort Cup Sole with Comfort Flex, High-Abrasion and Traction Performance



CROSSTECH®
PRODUCTS

FUSION™



Certification

NFPA 1971-2007 Edition Standard for Structural Firefighting

BOOTS THAT FIT YOUR
WALLET AND YOUR **FEET.**

CONTACT BLACK DIAMOND: EMAIL ALUNDER@BDFIRE.COM OR VISIT WWW.BDFIRE.COM

FIVE GOOD REASONS WHY HEROES TRUST STREAMLIGHT.



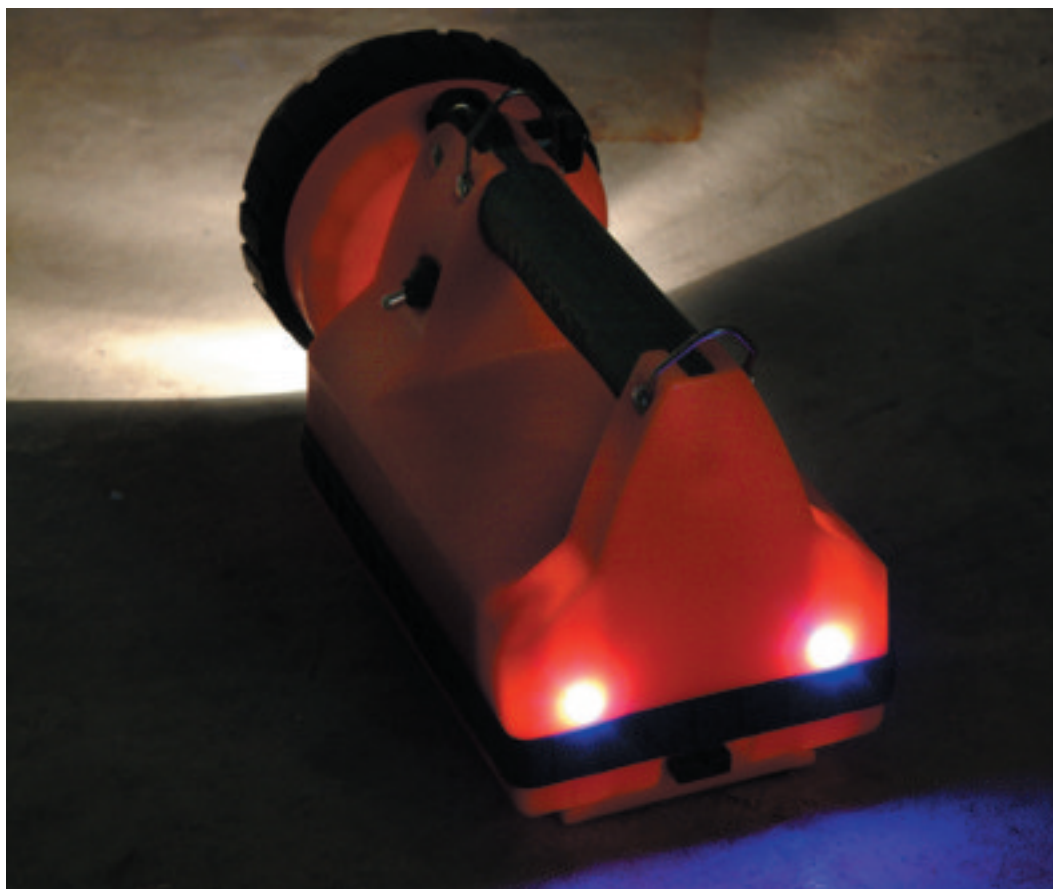
These are the lights that save lives. They're powerful, dependable, virtually indestructible, with innovative features like blue taillight LEDs, Smoke Cutter Optics, tilt and twist heads. From handheld lanterns and ultra-bright flashlights to lightweight lanterns that clip on to turnout gear, Streamlight is the name more firefighters trust to light the way.



STREAMLIGHT
Heroes Trust Streamlight™

30 Eagleville Road, Eagleville, PA. USA 19403
1-800-523-7488 • www.streamlight.com

*FireBox® Lantern.
Ultra-bright LED
taillights are taking
lanterns to a new level,
enabling firefighters to
be seen in smoky
conditions regardless of
which direction the
light is shining*



Today's Flashlights Built For Performance And Safety

By Brad Penney

Streamlight

Technology advances are yielding new uses for professional handheld flashlights, while enabling firefighters to use these tools even under the most hazardous conditions.

Handheld flashlights and lanterns have long been a staple of the firefighting profession. The comprehensive line of flashlights available today have become essential tools for responding to the rigorous demands of firefighting – from rechargeable lanterns that can illuminate smoke-filled rooms, to lightweight personal lights that can be clipped on turnout gear for easy, hands-free use.

Flashlights and lanterns are so commonplace today, in fact, that many specifiers of firefighting equipment may think they know everything there is to know about their brightness, longevity, safety characteristics, and battery sources. But, the truth

is that there is a science behind choosing the right flashlight for a particular task that can make all the difference in combating dense smoke, sifting through debris during an arson investigation, working in confined spaces or under other potentially hazardous conditions, and, in general, increasing overall efficiency.

Following is an overview of how to select professional flashlights or lanterns for firefighting uses:

Safety ratings

A good place to begin is on the subject of flashlights and hazardous environments. Any flashlight, headlamp or lantern intended for use in areas

TORCHES

4AA ProPolymer® Lux.
Flashlights with a polymer casing are non-conductive and protect against electrical shock. They also are tough enough to stand up to the demanding conditions firefighters face



where fire or explosion hazards may exist due to the presence of ignitable concentrations of flammable gases, liquids, vapors, dusts or other materials should be properly tested and certified. Testing organizations such as DEMKO, FTZU and SNCH test and certify products for use in hazardous locations according to the European Union (EU)

Directive 94/9/EC (ATEX). While compliance with ATEX standards is not mandated in most Asia Pacific countries, many fire agencies in this region of the world follow the directive when selecting products for use in hazardous environments.

Under the directive, hazardous locations are classified according to the properties of flammable materials that may be present, and the likelihood of flammable concentrations under working conditions. Areas that are classified into zones (0, 1 and 2 for gas, vapor and mist) and gas groups (A, B and C for propane, ethylene and acetylene and hydrogen) must be protected from effective sources of ignition and meet the requirements of the standards to which compliance with the directive is presumed. Zone 0 has the highest risk ("continuous") of an explosive atmosphere being present and thus requires Category 1 marked equipment. Zone 1 has a "likely" risk and requires Category 2 marked equipment. Zone 3 has the least likely risk ("not likely") and requires Category 3 marked equipment. As an example, a Zone 0 rated flashlight would be required to check the inside of an empty petroleum tank, where there is a definite risk of an explosive atmosphere. However, a Zone 1 rated light could be used to inspect the outside of the same petroleum tank, where a Zone 2 rated light could be used only within a certain distance of the tank interior's explosive atmosphere.

Further, approved flashlights are temperature rated, ranging from T1 (less than or equal to 450°C) to T6 (less than or equal to 85°C). (For more information, visit the European Commission

Rescue equipment

4000-series

The power of innovation

holmatro

Our 4000-series
includes many
innovations:

- CORE™ one hose system
- I-Bolt flat central bolt construction
- LED lighting in carrying handle
- Speed Valve on all ram jacks and spreaders for quicker tool opening

Based on the latest technologies Holmatro develops rescue tools which perform better and make your procedures quicker, safer and easier.

www.holmatro.com

CORE™ Technology

I-Bolt Technology

LED lighting in carrying handle

holmatro
mastering power

website at ec.europa.eu/enterprise/atex/guide/index.htm, where hazardous locations, classifications and protection techniques are further defined).

Once certified, equipment is marked with the "CE" and "Ex" symbols to identify that it complies with the ATEX directive. Look for these symbols on the products you select – it's your assurance that the flashlight or lantern will be safe, reliable and tough enough for the hazardous job for which it is designed.

Typically, flashlights with a Category 2 rating can deliver maximum brightness – as high as 25,000 candlepower – in a light that is non-incendive. Flashlights and lanterns with a Category 1 rating, while rated intrinsically safe, normally are considerably less bright, having as little as 1,000 candlepower. While there is no question that performance is sacrificed when using a light rated for use in situations with the highest risk of an explosive atmosphere, fire professionals still can choose a light which provides the maximum brightness for the application.

Other safety considerations

Safety considerations also include the flashlight casing itself. Bodies fabricated from polymer engineering resin materials are virtually indestructible, shock resistant, and non-conductive, potentially important considerations in hazardous environments. Polymers also do not retain heat, making them ideal for use where fire or high temperatures may be present. And today's lights also are exceptionally durable, as it is not unusual for them to be knocked around, dropped several feet, run over or even submerged in water or mud during a typical firefighter's work week. Flashlights with a polymer housing or machined aluminum casing are tough enough to withstand this type of daily abuse, extending the life of flashlights, and ensuring the quality of the original investment.

Advances in bulb technology

Other considerations when selecting lighting tools are the amount of brightness, type, longevity and cost of flashlight bulbs. Incandescent, filament-based bulbs, such as Xenon or Halogen lamps, provide a powerful, high-intensity beam that is the most effective light for cutting through smoke. This makes them a good choice for first responders at a fire scene, for example, who must often contend with dense smoke. Some lights even incorporate black-dot Xenon bulbs with anti-glare coating for maximum visibility in smoke, fog and mist. Many incandescent bulbs are easily focused and deliver the most power and highest performance, however, they may fail on extreme impact. They also require periodic replacement.

LED (Light Emitting Diodes) are made from solid state construction, are virtually unbreakable and offer up to 100,000 hours of life. Although less powerful than incandescents, they deliver extremely long run times at low light levels, which make them ideal for fire professionals working long into the night, or under other low-light conditions. With their soft focus and short, wide range, they also are useful when working in confined spaces or other instances when not working past one's hands. Another advantage to LED lights is that most can be dimmed to suit the circumstances that firefighters encounter.

Super High Flux LEDs, which provide an even longer reaching, brighter beam that is ten times brighter than a standard, high-intensity LED, combine the reliability of an LED with the performance of an incandescent. In recent years, LEDs have advanced even further with the development of "power" LED sources which provide a two- to three-fold increase in brightness over Super High Flux LEDs. The end result is a consistently bright, intense beam that pierces the darkness while delivering the long run times and indestructibility which characterize LEDs – and with the light output and efficacy to rival historically brighter incandescent light sources. This technological breakthrough, combined with new advances in flashlight optics which optimize how light is reflected, is revolutionizing the flashlight industry.

Some modern lights even feature LED/incandescent hybrid combinations, enabling firefighters to choose between a high-power

Contact :

PERMALIGHT (ASIA) CO. LTD.

4/F, Waga Commercial Centre, 99 Wellington Street, Central, Hong Kong.

Tel.: 852-2815 0616 Fax 852-2542 3269

Email: pila@biznetvigator.com Website: www.pilatorch.com

Made by Pila® exclusively for PARAT® - Schönbach GmbH + Co. KG, Germany

Survivor® LED. Flashlights with right angle heads can be clipped to turn out gear for hands-free use, while providing a super-bright LED light. This model also ensures that firefighters always have the power they need, since it runs on either a rechargeable nickel cadmium battery or alkaline batteries



Xenon bulb and a long-lasting LED with a flick of a switch – the incandescent mode when a high-intensity light is needed, and the LED mode when the flashlight will be used for an extended period of time.

Rechargeable vs. standard battery-powered lights

Another consideration in selecting flashlights, headlamps and lanterns is the choice between rechargeable versus standard battery-powered lights. Firefighters can be sure that their flashlight is fully operational at all times by selecting a rechargeable flashlight equipped with nickel-cadmium or lithium ion batteries. In most models, these heavy duty batteries can be recharged up to 1,000 times, and are usually fully charged within 10 hours. A rechargeable flashlight can be stored in its charger overnight, eliminating the uncertainty that comes with the territory when using disposable batteries.

Some rechargeable lights offer fast-charge options that provide a fully charged light in just one to two hours, enabling lights to quickly be returned to the field for duty. Another charging option is one that allows firefighters to charge the flashlight in a truck or other vehicle between uses. This feature enhances reliability of a light, ensuring that it's always ready to go, eliminating the possibility of being without light on a fire scene.

While their initial purchase price is often higher, rechargeable lights also can save money in the long run by eliminating the need to buy replacement batteries – a real consideration for buyers who are watching the bottom line. And many manufacturers today provide chargers that are universal across their individual product lines, eliminating the need to purchase new chargers as models are upgraded.

Of course, battery-powered lights have their

uses as well, depending on how frequently and long the light will be used. Disposable batteries, such as alkaline or lithium, have excellent storage life – seven and 10 years, respectively. They generally offer longer runtimes for a given bulb power, are typically lower in initial purchase price and easier to keep spares on hand.

Lights with special features

In addition to hand-held flashlights, there are other models to consider that may be the right choice for firefighting professionals. For example, lightweight, handheld personal lights with a right angle head are designed to clip on to turn-out gear for easy, hands-free use. Certain right angle lights offer a choice of light intensity as well as an emergency flash, giving firefighters and rescue personnel a highly versatile tool for operating in smoke-filled or extremely low-light conditions. Some also use a dual power source, operating on a rechargeable nickel-cadmium battery, while also permitting firefighters to insert a spare pack of alkaline batteries to reduce the likelihood of being caught in the dark with a spent battery.

Safety-rated penlights are a good choice for first responders checking for blood and other fluids in confined spaces where open oxygen is flowing. Some models of the traditional penlight even have been redesigned to include a bendable, extendable cable that enables arson investigators, for example, to see into the tightest spots. Other lights offer such features as a laser pointer for precisely targeting the source of a problem for a fellow investigator, a strobe for signaling purposes, or green or red LED settings, which can help preserve night vision when conducting inspections under darkened conditions.

Portable lanterns

Some of today's portable lanterns are equipped with powerful, ultra-bright LED taillights, which enable firefighters to signal each other for help, and identify and locate other team members as they travel through dimly lit, smoke-filled rooms, no matter which direction the light beam is pointed. They also serve as ideal markers for delineating room doorways, stairwells, landings, escape routes and other egress points in a burning structure. Most modern lanterns also are designed to be easily gripped and operated even with heavy gloves or wet hands, so they can be used even under the most challenging conditions.

High Intensity Discharge (HID) Xenon lanterns also are available that offer incredible brightness – in some cases, over several thousand lumens. The increased output is ideal for industrial firefighters at a large oil refinery, for example, or for other scene lighting applications.

Conclusion

Lighting technology will continue to evolve with time and user demand, which will result in even more applications specialized to firefighting uses, in addition to further enhancements in flashlight runtimes, weight, and portability. As such, flashlights will become increasingly vital tools for a wide variety of firefighting purposes. Like the professionals who use them, these lights will always be ready to go the distance in service of one of the world's most complex, challenging and demanding jobs – firefighting.

APF

Brad Penney is President and Chief Executive Officer of Streamlight, Inc., a leading manufacturer of flashlights for firefighting, industrial, automotive, law enforcement, military and sporting goods applications. The company is headquartered in Eagleville, PA, USA.



**4AA
eLED**



Simply the best hands-free lighting system



HangAir®



Dries your protective gear in hours, not days!

NITEX®



Super small, rechargeable Lithium-Ion worklight!

**Ultra
BOX®**



Protects the little things while you take care of the big ones!



OVER **114 YEARS** OF QUALITY & SERVICE IN THE HOSE INDUSTRY

MANUFACTURER OF MUNICIPAL, FORESTRY AND INDUSTRIAL HOSE

POWERLINE® - Kink resistant
- Maximum performance and durability
- Patented product
- Used in extreme attack hose applications

Superior Technology
for **Fluid Transfer**



www.niedner.com
(800) 567-2703

NIEDNER IS AN ISO9001:2000 CERTIFIED COMPANY BY UL REGISTRAR



The Case for Supplemental Evacuation

Taking the lessons learned from 9/11 and ongoing attacks against hotels and other buildings, America's leading Fire Safety body, the National Fire Protection Association, NFPA, issued new Life Safety Codes approving the use of "Supplemental Evacuation" (S/E) technology to assist civilians exiting high rise buildings in an emergency.

By Robert Kirkland

Advanced Evacuation
Solutions, Inc.

and

John Ng

AES Asia

Two years earlier, the American Society for Testing & Materials (ASTM) issued a strict set of performance and reliability Standards for External Evacuation systems designed for use in the NFPA approved Supplemental Evacuation role. Combined, the new Codes and Standards represent the first comprehensive framework for the regulation and development of new technology for high rise rescue and self-evacuation.

The concept of Supplemental Evacuation is based on equipping buildings or designated areas with emergency rescue and escape systems that Responders or building occupants can use to evacuate external to the structure. This is not intended to replace existing code mandated exits

or stairwells but rather to offer an alternative means of egress when traditional escape routes are blocked or unsafe. Exceptions to this include the sick, injured or impaired for whom this new technology should be considered a primary means of egress.

To encourage the use of this new technology, the NFPA also approved the use of S/E resources in mandatory Evacuation Plans that many buildings over 6 floors are required to file with local authorities.

In this article we will focus on recent developments in high rise rescue and evacuation technology made possible by the new Codes as well as innovative Responder and civilian applications for these new tools.

Responder budgetary considerations – Increasing pressure on government budgets means the funding for high ticket items such as Aerial Trucks is in short supply. Recent high rise fires and bombings in Jakarta produced complaints from local Responders and others about a lack of funds available for new equipment. Given the relatively low number of high rise rescue operations in the course of a year, the per capita cost of serving this specialized sector is disproportionately high. In the long term, the widespread use of S/E would transfer some of the costs incurred by the fire department related to high rise rescue operations over to the building owners and tenants themselves who benefit from these specialized services.

Minimizing evacuation hazards

Human factors – For years emergency planners have doubted the public's ability to respond calmly and properly in a crisis. This perception is validated historically by examples of group panic with fatal consequences. The S/E concept changes that calculus once and for all. The unpredictable and

**An important tactical
advantage to evacuating
people outside the building is a
reduction or elimination of
evacuee traffic in the
stairwells, leaving them clear
for Responder use.**

often erratic behavior of emergency evacuees flows from uncertainty and fear of the outcome. The mere presence of S/E resources, like lifeboats on a ship, will have a calming influence, reduce stress and convert a problematic process to a more orderly procedure.

Special needs victims – A prime mover in the development of new S/E techniques is the requirement to accommodate special needs victims of any physical condition, age or impairment. People in wheelchairs, the sight impaired, the injured and infirmed are at highest risk in any critical incident and the most difficult to evacuate down stairwells. Hospitals and senior citizens buildings in particular would benefit from this protection.

Clearing the stairwells – An important tactical advantage to evacuating people outside the building is a reduction or elimination of evacuee traffic in the stairwells, leaving them clear for Responder use. Civilians routinely suffer unnecessary smoke inhalation, falls and other injuries descending stairwells in an emergency. The presence of special needs victims complicates the process further.

Building evacuation strategy

Pre-planning for supplemental evacuation – The pre-planning concept is not new but expanding it to include S/E capability elevates the strategy to a new level. Creating and carrying out reliable evacuation plans will be greatly enhanced with the inclusion of high tech S/E systems at designated "Evacuation Stations" located strategically throughout the building. Just as passengers on a

cruise ship receive lifeboat assignments, each office, apartment or other unit would receive a designated evacuation station nearby for use if needed.

Localized rescue and evacuation – The typical high rise fire is contained to localized areas in the structure. In many cases only the occupants directly above and next to the source are at immediate risk and in need of attention. S/E pre-plans for that contingency by locating escape stations on each floor thereby assuring everyone of timely access.

Shelter in place (SIP) – A strategy preferred by some fire departments is to have civilians outside the danger zone stay in place and wait to be instructed by arriving Responders or designated individuals. Unless there is Imminent Danger to Life or Health, SIP may be the best policy. The theory certainly fits well in the S/E model which advises people to avoid the stairs and remain in their space or designated shelter until or unless they have to escape.

Safe rooms and refuge areas – Many buildings have adopted the Safe Room and Refuge Area concept providing occupants with a hardened or protective environment to seek shelter in during an emergency. Such locations are ideal for deploying S/E systems.

Total building evacuation – The Supplemental Evacuation concept anticipates occasional mass evacuations and meets the need with multiple evacuation stations strategically located throughout the structure and close coordination with local Responders to conduct rescue operations as needed.

Responder coordination

The new technology under development for S/E will enable Responders and civilians to work together in a coordinated fashion during an emergency. Buildings equipped with S/E resources will enable Responders to do their jobs faster, more safely and with less expense and manpower. Some new S/E systems under development will feature a direct communications link between Responders and personnel in the building occupants manning the escape stations to enable close cooperation.

When a building elects to adapt the S/E solution, the decision would be made in concert with local Responders. Joint training exercises with Responders and building occupants using the equipment in mock emergencies will create a managed and orderly Evacuation Plan; again comparable to lifeboat drills on a ship.

Pre-positioned assets (PPA) – In a Responder Coordination driven model, the S/E systems deployed in a building would be considered Pre-Positioned Assets providing arriving Responders with the resources to conduct an orderly evacuation if needed. The operative words are "if needed" as the very presence of Supplemental Evacuation capability affords Responders the luxury of "sheltering in place" while they assess the threat level.

Redistributing manpower – The use of SE would allow a gradual shift away from traditional Standard Operational Procedures (SOP) which directs arriving Responders to focus on rescue and evacuation to a more choreographed and organized process designed to save lives and minimize property damage. Responders arriving at a building equipped with Supplemental Evacuation

resources will be able to focus more manpower on suppression and containment or other incident control procedures and less on rescue operations.

The combination of Supplemental Evacuation and Responder Coordination will lend structure and discipline to a traditionally chaotic environment. With the stairwells clear and those building occupants in harms way evacuating from designated safe rooms, refuge areas or escape stations, Responders will be able to concentrate on fire fighting and saving the building.

Property damage reduction – A less apparent but critical benefit of the S/E concept is the projected reduction in property damage made possible by the additional manpower available to put out the fire. Every minute a building burns costs the stakeholders and insurance companies money. Underwriters should consider the mandatory use of S/E in high risk, upscale buildings that could prevent a million dollar loss from becoming a ten million dollar loss.

New technology capabilities

Robotics – Picture a future where iconic high rises are equipped with intelligent robotic systems designed to automatically transport the tenants to safety in an emergency. That future is closer than you might think as work is underway now in America to develop and perfect this revolutionary capability.

Powered systems – With the passage of the new NFPA Codes, powered systems using electric, hydraulic, pneumatic and other advanced technologies are now approved for use. The next generation of powered Robotic and Semi-Automated systems will completely redefine our ideas about high rise rescue and escape.

Advances in batteries, super-capacitors, regenerative power systems and other microprocessor controlled technologies make powered rescue systems possible. New lightweight, high power Lithium Iron Phosphate batteries offer ten years life spans and superior charge retention for maximum reliability.

Backup power – NFPA Codes approving the use of powered rescue devices also require backup power sources. While new design systems offer long life internal power supplies, auxiliary options will include generators in the building, on the roof, or on the ground; mobile power packs provided by systems manufacturers or power from the ground via extension cables.

Remote control, communications and automation – The recent approval of powered rescue systems opens up new applications in remote control, networking, communications, automation, robotics and other high tech features allowing Responders or building personnel to control S/E systems remotely from the ground or elsewhere in the structure. In operational terms this would enable Responders to issue remote commands to Supplemental Evacuation machinery in the building to deploy, lower lines to the ground, establish communications with people in the building and other functions.

Lifting capability and man rated hoisting – Some new generation S/E designs feature a powered lifting capability for transporting SCBA, hoses, litters and other firefighting equipment to the upper floors effortlessly; once again saving manpower for other operations.

Other new Supplemental Evacuation systems under development will offer Responders a man-rated lifting capacity for transporting High Angle Rescue Teams or medical personnel and their gear to the upper floors automatically where they arrive fresh and with enough air to operate as long as needed.

Point to point rescue and elevator shafts – Another important operational feature of new S/E systems is their point to point transport capability within a structure. Traditional escape systems are designed to evacuate users to the ground. New generation systems can lower people trapped above a fire to a safe level below and discharge them. This cuts rescue times substantially and again saves manpower. An optimum location for conducting point to point evacuation in buildings without windows, balconies or other external access points is an elevator shaft; provided the shafts are clear of smoke and not structurally compromised.

Self rescue application – Armed attacks, bombings and other violent acts pose an even greater threat to civilians in high rises because help from the outside will be slow arriving. Recent Incidents in Islamabad, Mumbai and Jakarta demonstrate the need for civilian self-rescue capability in high profile hotels that are potential targets for attack. In such situations Responder access to the building is often restricted or prohibited completely in the early stages leaving occupants inside the building to fend for themselves.

**An optimum location for
conducting point to point
evacuation in buildings
without windows, balconies or
other external access points is
an elevator shaft; provided the
shafts are clear of smoke and
not structurally compromised.**

Personal and private protection – On a smaller but no less deadly scale, businesses or high profile individuals who may be targeted by criminals, enemies or other threats can use Supplemental Evacuation equipment to escape the immediate threat by exiting the building.

Conclusion

The NFPA and ASTM spent years developing this new approach to high rise emergency management. The use of Supplemental Evacuation in high rise safety planning will enable new synergies between technology, Responder capabilities and civilian financial resources.

We hope this information will educate safety planners, Responder groups, building stakeholders, tenant bodies, insurance companies and others about the benefits of Supplemental Evacuation. We implore and encourage the brave and heroic members of the Global Responder community to play a constructive role in implementing this new life saving protocol. **APF**

For more information on the Advanced Evacuation Solutions systems that supplement building evacuation planning, visit our website: www.adevac.com

Distributor and Representative Offices

ANGUS FIRE

AUSTRALIA

KIDDE AUSTRALIA PTY LTD

A1 Janine St
Scoresby Industrial Park
Scoresby, Victoria 3179
Tel: +61 3 9765 3850
Fax: +61 3 9765 3801
Email: info@kidde.com.au
Website: www.kidde.com.au
Representative Office

BANGLADESH

SAM AGENCIES LTD

5/5, Block A, 1st Floor, Iqbal Road
Mohammadpur, Dhaka-1207
Tel: +880 2 911 0264
Fax: +880 2 912 0241
Email: info@sam-sperry.com
Website: www.sam-sperry.com
Dealer/Distributor

BRUNEI DARUSSALAM

YEN LEE FIREWELD PTE LTD

18 Penhas Road, Singapore 208182
Tel: +65 6290 9890
Fax: +65 6290 1444
Email: yenlee@fireweld.com.sg
Website: www.fireweld.com.sg
Dealer/Distributor

CHINA

KIDDE CHINA

Room 805, Guardforce Centre
3 Hok Yuen Street East
Hung Hom, Kowloon
Hong Kong
Tel: +852 2195 3688
Fax: +852 2370 8381
Email: general@kidde-china.com
Representative Office

HONG KONG

CENTURION FIRE FIGHTING CO

Room A, 13th Floor
Go-Up Commercial Building
998, Canton Road
Mongkok, Kowloon
Contact: Johnny Yuen (Manager)
Tel: (00 852) 2332 7071/2332 9570
Fax: (00 852) 2332 6145
Email: johnny@centurionfire.com.hk
Dealer/Distributor

INDIA

KIDDE INDIA LIMITED

EL 205, TTC Industrial Area, Mahape,
Navi Mumbai, 400 710, India
Tel: +91 22 27618555
Fax: +91 22 27618444
Email: sales@kiddeindia.com
Website: www.kiddeindia.com
Representative Office

INDONESIA

PT RANTAI LAUT

Jl Kemang Raya No. 11, Jakarta Selatan
Contact: Jimmy Singh
Tel: (00 62) 21 717 90122
Fax: (00 62) 21 717 90607
Email: jimmy@rantai-laut.com
Website: www.rantai-laut.com
Dealer/Distributor

JAPAN

OWEN LTD

2-5-20 Gokou-Nishi
Matsudo-Shi Chiba T270-2218
Contact: Mr Masao Oyake (Managing Director)
Tel: (00 81) 47 389 5510
Fax: (00 81) 47 385 1763
Email: owen@nsu.biglobe.ne.jp
Dealer/Distributor

KAZAKHSTAN

FIRECENTER TQR LTD

13 Kunaev Street, 480016 Almaty
Tel: +7 3272 790055/790627
Fax: +7 3272 507187
Email: tor@firetor.com
Dealer/Distributor

KOREA (SOUTH)

INDECO CORPORATION

B-704 Daelim Acrotower
1591 Kwangyang-Dong
Donan-Ku, Anyang-Si, Kyunggi-Do
Tel: +82 31 4789 150
Fax: +82 31 4789 154
Email: thomas@esafety.co.kr
Dealer/Distributor

MACAU

CENTURION FIRE FIGHTING CO

Room A, 13th Floor
Go-Up Commercial Building
998, Canton Road
Mongkok, Kowloon
Contact: Johnny Yuen (Manager)
Tel: (00 852) 2332 7071
Fax: (00 852) 2332 6145
Email: johnny@centurionfire.com.hk
Dealer/Distributor

MALAYSIA (EAST)

KINSAJASA SDN BHD

1st Floor, 2298, Pujut 5 Shoplot
98000 Miri, Sarawak
Tel: +60 85 665802/660423
Fax: +60 85 655803/655402
Email: kinsar@tm.net.my
Dealer/Distributor

MALAYSIA (WEST)

DASAPREM (M) SDN BHD

10 & 12 Jalan Muara 8/9
40000 Shah Alam, Selangor, Darul Ehsan
Tel: +60 3 55105071/55100957
Fax: +60 3 55104486
Email: dasaprem@yahoo.com
Dealer/Distributor

RANTAU IDAMAN SDN BHD

10-8-3, 8th Floor, Queen's Avenue
Block 10, Jalan Shelly, 55100 Kuala Lumpur
Tel: +60 3 9206 6333
Fax: +60 3 9206 6222
Email: brucel@tsigm.com
Website: www.tsigm.com
Dealer/Distributor

MALDIVES

ANTIFIRE CO PVT LTD

PO Box 247, G. Graces
Nirolhu Magu, Male
Tel: +960 310322
Fax: +960 310323
Email: antifire@dhivehinet.net.my
Website: www.antifiremaldives.com
Dealer/Distributor

NEPAL

MOTHERLAND TRADERS

PO Box 938, Bhimsengola
Baneswar, Kathmandu
Tel: +977 1 480534
Fax: +977 1 474229
Email: mlt@mos.com.np
Dealer/Distributor

PAKISTAN

FIRESTOP AIDS PVT LTD

6/B First Floor, Dinar Chambers, PO Box 5786
West Wharf Road, Karachi 74000
Tel: +92 21 231 3065
Fax: +92 21 231 0457
Email: info@firestopaids.com
Website: www.firestopaids.com
Dealer/Distributor

PHILIPPINES

ALARM SYSTEMS CORP

Unit 3205, Summit-1
Office Tower, 530 Shaw Blvd
Mandaluyong City
Contact: Allen Lim
Tel: +632 532 0556
Fax: +632 533 6476
Email: mail@alarmsystems.ph
Website: www.alarmsystems.ph
Dealer/Distributor

SINGAPORE

KIDDE ASIA PTE LTD

70 Bendemeer Road, #02-02, Luzerne Building
Singapore 339940
Tel: +65 6424 7979
Fax: +65 6424 7978
Email: kenneth.loh@kidde-asia.com.sg
Website: www.kiddeasia.com
Representative Office

YEN LEE FIREWELD PTE LTD

18 Penhas Road, Singapore 208182
Tel: +65 6290 9890
Fax: +65 6296 1444
Email: yenlee@fireweld.com.sg
Website: www.fireweld.com.sg
Dealer/Distributor

SRI LANKA

CBE COMMUNICATIONS & BUSINESS EQUIPMENT

99/6 Rosmead Place, Colombo 7
Tel: +94 112 699 699
Fax: +94 112 695 047
Email: cbe@cbe.lk
Website: www.cbe.lk
Dealer/Distributor

TAIWAN

SENSOR LTD

No. 8-1, Rueiguang Road, Neihs Chiu
Taipai, Taiwan 114
Contact: Alex Jeng
Tel: (00 886) 2 8792 9881
Fax: (00 886) 2 8792 9885
Email: sensor.fire@msa.hinet.net
Website: www.sensorfire.com
Dealer/Distributor

THAILAND

KAMPUWAT CO LTD

267/308-309 Sukhumvit Road
T. Maptaphut A. Muang, Rayong 21150
Tel: +66 38608718
Fax: +66 38608720
Email: info@kampuwat.com
Dealer/Distributor

VIETNAM**KIDDE ASIA PTE LTD**

70 Bendemeer Road
#02-02, Luzerne Building
Singapore 339940
Tel: +65 6424 7979
Fax: +65 6424 7978
Email: kenneth.loh@kiddle-asia.com.sg
Website: www.kiddleasia.com
Representative Office

BAUER COMPRESSORS

BANGLADESH**MOUNT EVEREST ENGINEERING COMPANY**

A-103 Gokul Arcade Sahar Road
Vile Parle (East)
Mumbai 400 057, India
Contact: Mr Hemant Gupta
Tel: +91 22 2820 2558
Fax: +91 22 2820 5792
Email: meecbom@vsnl.net
Dealer/Distributor

BRUNEI**BAUER COMPRESSORS ASIA PTE LTD**

2 Penjuru Place
#01-05 Penjuru Tech Hub
Singapore 608783
Contact: Mr Stephen Hines (Managing Director)
Tel: +65 6271 6271
Fax: +65 6272 3345
Email: info@bauer-compressors.com.sg
Representative Office

FRENCH POLYNESIA**TAHITI SPORT**

PO Box 62
98713 Papeete
Tahiti, French Polynesia
Contact: Mr Thierry Alberola
Tel: +689 505959
Fax: +689 421775
Email: emonet@nautisport.pf
Dealer/Distributor

INDONESIA**MARINE & INDUSTRIAL COMPRESSORS**

304 Thomson Road
Singapore 307654
Contact: Mr Sng
Tel: +65 6250 6018
Fax: +65 6253 8443
Email: masmarin@singnet.com.sg
Dealer/Distributor

KOREA**TECKO CO LTD**

2F, SK@Technopark, Mega-Dong
190-1 Sangdaewon-Dong
Sungnam-City
Kyungki-Do 462 807
Korea
Contact: Mr K Y Lee
Tel: +82 31 776 2442
Fax: 82 31 776 2444
Email: kylee@tecko.co.kr
Dealer/Distributor

MALAYSIA**SK CRYOGENICS SDN BHD**

No. 16 Jalan Anngerik Mokara 31/52
Section 31, Kota Kemuning
40460 Shah Alam, Selangor
Malaysia
Contact: Mr Steve Kellett
Tel: +60 3 5122 4269
Fax: +60 3 5122 4235
Email: skcryo@gmail.com
Dealer/Distributor

PAKISTAN**ALPINE INDUSTRIALCON PVT LTD**

305/2 G.T. Road, Baghbanpura, Lahore
Pakistan
Contact: Mr Kashif Ahmad
Tel: +92 42 685 2313
Fax: +92 42 655 3674
Email: alpinelashore@hotmail.com
Dealer/Distributor

PHILIPPINES**CEBU ERNBRI IMPORT INC/AQUAVENTURE WHITETIP DIVE SUPPLY**

Ermita Office: Unit 101 Joncor II Bldg
#1362 A. Mabini Street
Ermita Manila Philippines 1000
Philippines
Contact: Mr Brian L Giles
Tel: +632 521 0433
Fax: +632 522 1165
Email: brian@aquaventurewhitetip.com
Dealer/Distributor

SINGAPORE**BAUER COMPRESSORS ASIA PTE LTD**

2 Penjuru Place, #01-05 Penjuru Tech Hub
Singapore 608783
Contact: Mr Stephen Hines (Managing Director)
Tel: +65 6271 6271
Fax: +65 6272 3345
Email: info@bauer-compressors.com.sg
Representative Office

MARINE & INDUSTRIAL COMPRESSORS

304 Thomson Road, Singapore 307654
Contact: Mr C H Sng
Tel: +65 6250 6018
Fax: +65 6253 8443
Email: masmarin@singnet.com.sg
Dealer/Distributor

SRI LANKA**HALCHEM LANKA PVT LTD**

107 Temple Road, Colombo-10, Sri Lanka
Contact: Cyril Halloluwa
Tel: +94 11 584 3213/+94 11 584 3219
Fax: +94 11 267 4615
Email: halloluwa@sltnet.lk
Dealer/Distributor

TAIWAN**MING SHEN ENTERPRISE CO LTD**

5, PaShih 1 Street, DanShui Town
Taipei, Taiwan 25170, Taiwan
Contact: Mr Tom Tseng
Tel: +886 (2) 2809 5789
Fax: +886 (2) 2809 6189
Email: tom@3arrow.com.tw
Dealer/Distributor

THAILAND**INTERSOL ENGINEERING & TECHNOLOGY PTE LTD**

7/288 Moo 6, Chaengwattana Road
Bhanmai, Pakkred, Nonthaburi 11120
Thailand
Contact: Mr Nathanan
Tel: +66 2 9808754
Fax: +66 2 9808753
Email: nathanan@intersol.th.com
Dealer/Distributor

VIETNAM**FRANCO-PACIFIC VIETNAM CO LTD**

55 Ho Hao Hon Street
District 1, Ho Chi Minh City
Vietnam
Contact: Mr Colm Minogue
Tel: +84 8 836 0257
Fax: +84 8 836 1387
Email: colminogue@francopacific.com
Dealer/Distributor

MEKONG SCUBA SUPPLY LTD

2/14 Cao Thang Street
District 3, Ho Chi Minh City, Vietnam
Contact: Mr Mike Doyle
Tel: +848 832 8952
Fax: +848 832 8650
Email: mikedoyle44@hotmail.com
Dealer/Distributor

BLACK DIAMOND

CHINA**SHANGHAI ZANRAY INDUSTRIAL CO LTD**

4F, No.88 Jianyun Road Zhoupu Town
Zhoupu Town, Nanhui District,
Shanghai 201318, China
Contact: Mr Andy Yu
Tel: +86 2151388798
Email: info@zanray.cn

TAIWAN**JIUH WAN ENTERPRISE CO LTD**

1F, No.335, Sec.1, Hsi An Rd., Pei Mei Terrace,
Pu Li Chen, Nan Tou Hsien 555, Taiwan
Tel: +886 492899101
Email: jiuw.wan@msa.hinet.net

THAILAND**GLOFAB CO LTD**

46/20 MOO9, Ramkhamhaeng Road
Sapan Soong, Bangkok 10240, Thailand
Contact: Mr Ramesh Tiwari
Tel: +66 29275911
Email: ratiwari@ksc.th.com

REST OF ASIA**BLACK DIAMOND GROUP INC**

c/o AMG International Limited
Room 1603 Wing Kwok Centre
182 Woosung Street, Jordan
Kowloon, Hong Kong
Contact: Mr Alan Lunder
Tel: +1 (617) 527-3312
Email: alunder@bdfire.com

BLÜCHER GMBH

SINGAPORE

Contact: Mr Raymond Hoi
Account Manager Blücher Office
Singapore
Cell: +65 903 06972
Email: raymond@bluechersg.com
Website: www.bluecher.com
Representative Office

BRISTOL UNIFORMS

AUSTRALIA**PACIFIC HELMETS AUSTRALIA PTY LTD**

Abn 60 088 233 783, Unit 1/28 Burnside Road
Hallmarc Business Park
Yatala Qld 4207
Contact: Keith Ward
Tel: 1300 73 1800
Fax: 07 3441 7177
Email: keith@pacifichelmetsaust.com
Website: www.pacifichelmetsaust.com
Dealer/Distributor

BANGLADESH**MANIK BROTHERS**

Hai Mansion (3rd Floor)
9/3 Motijheel Circular Road
Dhaka – 1000, Bangladesh
Contact: Mr A K Bhowmick
Tel: +880 2 7100 589
Fax: +880 2 7100 386
Email: manikbros@1postbox.com
Dealer/Distributor

BRUNEI**DASAPREM (M) SDN BHD**

10 & 12 Jalan Muara 8/9
40000 Shah Alam
Selangor, Darul Ehsan
Malaysia
Contact: Mr Prem R Murthy
Tel: +603 550 9060
Fax: +603 550 4486
Email: dasaprem@yahoo.com
Website: www.dasaprem.com
Dealer/Distributor

CHINA**SHENZHEN RUFN INDUSTRIAL CO LTD**

RM-701, 7/F Leaser Tower
1st Fuhua Rd
Shenzhen
China
Contact: Amy Jin
Tel: +86 755 8399 9581
Fax: +86 755 8399 9548
Email: wj@rnf88.com
Dealer/Distributor

FIJI**PHILLIPS & SMITH LIMITED**

10 Akatea Road
Glendene
Auckland
New Zealand
Contact: Mr S Hampton
Tel: +649 818 8048
Fax: +649 818 4484
Email: stuart@firemaster.co.nz
Website: www.firemaster.co.nz
Dealer/Distributor

HONG KONG**CHUBB HONG KONG LIMITED**

3 Hok Yuen Street East
Hung Hom, Kowloon
Hong Kong
Contact: Mr Simon Tsang
Tel: +852 2746 9628
Fax: +852 2785 0849
Email: simonsft.chubb.com.hk
Website: www.chubb.com.hk
Dealer/Distributor

INDIA**FOREMOST MARKETING PVT LTD**

M-1 Green Park Extn, New Delhi 110016, India
Contact: Mr Vinay Khanna
Tel: +91 11 261 969 82
Fax: +91 11 261 669 61
Email: foremost@vsnl.net
Website: www.foremostsafety.com
Dealer/Distributor

JAPAN**ABLE-YAMAUCHI CO LTD**

Yokohama Nishiguchi, SIA Building
10-36 Kitasaiwai, 2-Chome Nishi-Ku
Yokohama 220-0004, Japan
Contact: S. Yamauchi
Tel: +81 45 312 1130
Fax: +81 45 312 1350
Email: emiko@able-yamauchi.co.jp
Website: www.able.yamauchi.co.jp
Dealer/Distributor

MALAYSIA**DASAPREM (M) SDN BHD**

10 & 12 Jalan Muara 8/9
40000 Shah Alam
Selangor Darul Ehsan, Malaysia
Contact: Mr Prem R Murthy
Tel: +603 550 9060
Fax: +603 550 4486
Email: dasaprem@yahoo.com
Website: www.dasaprem.com
Dealer/Distributor

NEW ZEALAND**PHILLIPS & SMITH LIMITED**

10 Akatea Road, Glendene
Auckland, New Zealand
Contact: Mr S Hampton
Tel: +649 818 8048
Fax: +649 818 4484
Email: stuart@firemaster.co.nz
Website: www.firemaster.co.nz
Dealer/Distributor

SINGAPORE**YEN LEE FIREWELD PTE LIMITED**

18 Penhas Road, 208182
Singapore
Tel: +65 62909890
Fax: +65 62961444
Email: jeffrey@fireweld.com.sg
Website: www.fireweld.com.sg
Dealer/Distributor

SRI LANKA**FIRETECH (PRIVATE) LIMITED**

34 Walter Gunsekara Mawatha
Nawala, Sri Lanka
Contact: Leon Daniels
Tel: +94 11 4410588
Fax: +94 11 2806666
Email: firetech@pan.lk
Dealer/Distributor

TAIWAN**SHENG-TAI FIRE PROTECTION INDUSTRIAL CO LTD**

No 222-2 Sec2, Cheng Tai Rd
Wu-Ku Shiang, Taipei, Hsien
Taiwan
Contact: Liu Yuan Hung
Tel: +886 22292 1751
Fax: +886 22291 1984
Email: sato@mail.mold.net.tw
Website: www.shengtai.com.tw
Dealer/Distributor

VIETNAM**TRAN VU TRADING CO LTD**

61 Ban Co Street, District 3
Hochiminh City, Viet Nam
Contact: Tran Vu Hong
Tel: +84 88325101
Fax: +84 88309586
Email: sales@tranvufire.com
Website: www.tranvufire.com
Dealer/Distributor

BULLARD**SINGAPORE****BULLARD ASIA PACIFIC PTE LTD**

LHK Building
701, Sims Drive
#04-03
Singapore 387383
Tel: +65 6745 0556
Fax: +65 6745 5176
Email: bullardasia@bullard.com
Website: www.bullard.com
Representative Office

CUTTERS EDGE**AUSTRALIA****KDW CONSULTING LLC**

3023 Sonoma Way
Viera, FL 32955, USA
Contact: Kenton D Warner
Tel: 321 636 4543
Fax: 928 438 6382
Email: kenwarner@att.net
Website: www.cuttersedge.com
Representative Office

CHINA**ANCOM**

Building 5, Courtyard 10 Village, Middleroad,
North 3rd Ring Road
Contact: Pei Zhang
Tel: 86 10 6202 2792
Fax: 86 10 6207 7929
Email: hung.fang@utoronto.ca
Website: www.ancom.cn/www.cuttersedge.com
Dealer/Distributor

NORLAN ENTERPRISES INC

Room 952, #218 Tang Li Road, China
Contact: Helen Wang
Tel: 86 10 8467 3721/8467 3722
Fax: 86 10 8467 3770
Email: helenwang@norlan.cn
Website: www.norlan.cn/www.cuttersedge.com
Dealer/Distributor

HONG KONG**SAFETECH LIMITED**

Block C, Unit 11 11/F, Wah Lok Industrial Center
Shan Mei Street, Fo Tan, Shatin N.T., Hong Kong
Contact: Andy Chan
Tel: 852 2687 4083
Fax: 852 2687 2784
Email: safetech@netvigitor.com
Website: www.safety.com.hk/
www.14230tradebig.com/www.cuttersedge.com
Dealer/Distributor

INDIA**ASKA EQUIPMENTS LTD**

Aska House, 193 Deepali, Deepali Chowk
Outer Ring Road – Pitampura
New Delhi 110 034, India
Contact: Navdeep Garg
Tel: 91 11 27014416/27014417
Fax: 91 11 27014413
Email: info@askagroup.com
Website: www.askagroup.com/
www.cuttersedge.com
Dealer/Distributor

ISRAEL**OFER FIRE RESCUE & SALVAGE LTD**

Binyamina 30500, Israel
Contact: Ofer Halamish
Tel: 972 4 6288444
Fax: 972 4 6288555
Email: ofer@ofer.co.il
Website: www.ofere.co.il/www.cuttersedge.com
Dealer/Distributor

JAPAN**TEIKOKU SEN-I CO LTD**

5-13,2 Chome, Nihonbashi
Chuo-Ku, Tokyo 103, Japan
Tel: 81-3-3281-3026
Fax: 81-3-3274-6397
Email: teisen-tyo@teisen.co.jp
Website: www.teisen.co.jp/www.cuttersedge.com
Dealer/Distributor

KOREA**KDW CONSULTING LLC**

3023 Sonoma Way, Viera, FL 32955, USA
Contact: Kenton D Warner
Tel: 321 636 4543
Fax: 928 438 6382
Email: kenwarner@att.net
Website: www.cuttersedge.com
Representative Office

MALAYSIA**CITO MARKETING, SDN BHD**

No. 11, Jalan SS15/4B, Subang Jaya
47500 Petaling Jaya
Selangor, Darul Ehsan
Contact: Ahmad Nazmi Abu Raihan
Tel: +603 5631 1286
Fax: +603 5634 0583
Email: info@citogroup.co.my
nazmi@citogroup.com.my/www.cuttersedge.com
Dealer/Distributor

PHILLIPINES**KDW CONSULTING LLC**

3023 Sonoma Way, Viera
 FL 32955 USA
 Contact: Kenton D Warner
 Tel: 321 636 4543
 Fax: 928 438 6382
 Email: kenwarner@att.net
 Website: www.cuttersedge.com
Representative Office

SINGAPORE**KDW CONSULTING LLC**

3023 Sonoma Way, Viera
 FL 32955 USA
 Contact: Kenton D Warner
 Tel: 321 636 4543
 Fax: 928 438 6382
 Email: kenwarner@att.net
 Website: www.cuttersedge.com
Representative Office

SOUTH KOREA**JINUTEC INTERNATIONAL DIVISION**

711 Visiontop Officetel 374-4
 Won-Dong
 Osan-City
 South Korea
 Contact: Na Hae-Yul
 Tel: 82 31 375 8558
 Fax: 82 31 375 4884
 Email: hyna@jinutec.com
 Website: www.jinutec.com/www.cuttersedge.com
Dealer/Distributor

THAILAND**KDW CONSULTING LLC**

3023 Sonoma Way, Viera
 FL 32955 USA
 Contact: Kenton D Warner
 Tel: 321 636 4543
 Fax: 928 438 6382
 Email: kenwarner@att.net
 Website: www.cuttersedge.com
Representative Office

DRAEGER SAFETY**AUSTRALIA****DRAEGER SAFETY PACIFIC**

Axess Corporate Park
 Unit 99, 45 Gilby Road
 Mount Waverley
 Victoria 3149
 Tel: +61 3 9265 5000
 Fax: +61 3 9265 5097
 Email: customer.service@draeger.com
Representative Office

CHINA**BEIJING FORTUNE DRAEGER SAFETY EQUIPMENT CO LTD**

Yu An Lu 22, B Area
 Beijing Tianzhu Airport Industrial Zone
 Shunyi District
 Beijing, 101300
 Tel: +86 10 8049 8000
 Fax: +86 10 8049 8005
 Email: sales.safety.cn@draeger.com
Representative Office

INDIA**JOSEPH LESLIE DRAEGER MFG PVT LTD**

Leslico House, Prof. Agashe Road, Off 87-C
 Bhavani Shankar Road, Dadar (West)
 Mumbai 400028
 Contact: Prof. V S Agashe Marg
 Tel: +91-22-2422 1880/1878/7198
 Fax: +91-22-2430 3705
 Email: mumbai@lesliedraeger.com
Representative Office

INDONESIA**PT DRAEGERINDO JAYA**

Beverly Antasari Building
 Jl. Pangeran Antasari No. 67, Unit L
 Cilandak Barat, Jakarta, Selatan 12430
 Tel: +6221 751 3289
 Fax: +6221 751 2052
 Email: product_support@draeger.co.id
Representative Office

JAPAN**DRAEGER SAFETY JAPAN LTD**

3-8-1 Toyo Koto-ku
 Tokyo, Japan
 Japan Zip 135-0016
 Tel: +81 3 44 615111
 Fax: +81 3 44 615100
 Email: dlsjp-sales@draeger.com
Representative Office

KOREA**DRAEGER SAFETY ASIA**

Daejong Bld. #1106
 Bang-l-dong, Songpa gu, Seoul, Korea
 Tel: +82 2 6415 8222
 Fax: +82 2 6415 8223
 Email: sdseo3@magicn.com
Representative Office

MALAYSIA**DRAEGER SAFETY ASIA PTE LTD**

No. 14, Jalan PJS 11/18
 Bandar Sunway 46150
 Petaling Jaya, Malaysia
 Tel: +60 3 5635 6460
 Fax: +60 3 5635 4171
 Email: dsa.malaysia@draeger.com
Representative Office

NEW ZEALAND**DRAEGER SAFETY PACIFIC PTE LTD**

Unit O, No. 150
 Harris Road, East Tamaki, Auckland
 Tel: +649 273 3160
 Fax: +649 273 3159
 Email: customer.service@draeger.com
Representative Office

SINGAPORE**DRAEGER SAFETY ASIA PTE LTD**

67 Ayer Rajah Crescent #06-03
 Singapore 139950
 Tel: +65 6872 9281
 Fax: +65 6512 1908
 Email: dsa.singapore@draeger.com
 Website: www.draeger.com.sg
Regional Head Office

TAIWAN**DRAEGER SAFETY TAIWAN CO LTD**

12/F, Kuohwa Building
 868-5 Chungcheng Road, Chungho City
 Taipei County, 235 Taiwan R.O.C.
 Tel: +886 (02)2223-6388
 Fax: +886 (02)2223-2258
 Email: sales.taiwan@draeger.com
Representative Office

THAILAND**DRAEGER SAFETY (THAILAND) LTD**

123/20, Nonsi Road
 Kwaeng Chongnonsi, Khet Yannawa
 Bangkok 10120
 Tel: +662 6811 781 (4 lines)
 Fax: +662 6811 780
 Email: sales.thailand@draeger.com
Representative Office

VIETNAM**DRAEGER SAFETY ASIA PTE LTD**

No. 5, A2 Nguyen Khanh Toan Str.
 Cau Giay District, Hanoi, Vietnam
 Tel: +84 4 281 3463
 Fax: +84 4 281 3461
 Email: sales.safety.vn@draeger.com
Representative Office

FIKE**AUSTRALIA****FIRE PROTECTION TECHNOLOGIES PTY LTD**

Unit 14, 42-44 Garden Blvd, Dingley
 Victoria 3712, Australia
 Tel: +61 3 9558 0715
 Fax: +61 3 9558 0725
 Email: Enquiries@fire-protection.com.au
 Website: www.fire-protection.com.au
Dealer/Distributor

BANGLADESH**NAVANA INTERLINKS LTD**

205-207 Tejgaon I/A
 Dhaka-1208, Bangladesh
 Tel: +88 02 -9892911
 Fax: +88 02 -9895252
 Email: info@navana-iv.com
 Website: www.navana-iv.com
Dealer/Distributor

HONG KONG**THE JARDINE ENGINEERING CORPORATION LTD**

13/F Somerset House, Taikoo Place
 979 King's Road, Hong Kong
 Tel: +852 2807 4684
 Fax: +852 2503 4210
 Email: yick-ken.kwong@jec.com
 Website: www.jec.com
Dealer/Distributor

INDIA**NEWAGE INDUSTRIES**

Champaklal Ugyog Bhavan
 Unit No. 7, Sion (East)
 Mumbai 100 022, India
 Tel: +91 22 2407 7421
 Fax: +91 22 2407 4229
 Email: info@newage-india.com
 Website: www.newage-india.com
Dealer/Distributor

INDONESIA**KARYA LESTARI MAKMUR PT**

Jl. Pangeran Jayakarta
 85AK, Jakarta 10730, Indonesia
 Tel: +62 21 628 1933
 Fax: +62 21 628 1976
 Email: johnklima@cbn.net.id
Dealer/Distributor

KOREA**PARADISE INDUSTRY CO LTD**

#683-116 Hannam-Dong
 Yongsan-Ku, Seoul, South Korea
 Tel: +82 2 3780 8770
 Fax: +82 2 3780 8772
 Email: shlee@paradise-ind.co.kr
 Website: www.paradise-ind.co.kr
Dealer/Distributor

MALAYSIA**FIKE ASIA PACIFIC SDN BHD**

18B Jalan Astaka L U8/L
 Bukit Jelutong, 40150 Shah Alam
 Selangor, Malaysia
 Tel: +60 3 7859 1462
 Fax: +60 3 7859 1461
 Email: chun-wah.leong@fike.com
 Website: www.fike.com
Representative Office

SUKIADA ENGINEERING SDN BHD

No. 20 Jalan Astaka L U8/L
 Bukit Jelutong, 40150 Shah Alam
 Selangor, Malaysia
 Tel: +60 3 7845 2008
 Fax: +60 3 7845 6008
 Email: bkwong@sukiada.com.my
 Website: www.sukiada.com.my
Dealer/Distributor

PAKISTAN**MGH ENGINEERING AND CONTROL PVT LTD**

H. # 20 St., #5/A Kot Shahabdin
Shahdrah, Lahore 54950, Pakistan
Tel: +92 - 42 - 7913064
Fax: +92 - 42 - 7913064
Email: mansoorshaker@yahoo.com
Website: www.mgheng.com

Dealer/Distributor**PHILIPPINES****FIRE SOLUTIONS INC**

1028 Malaya Street, Malanday,
Marikina City, 1805 Philippines
Tel: +63 2 371 9774
Fax: +63 2 374 3041
Email: firesolutions@skyinet.net

Dealer/Distributor**SINGAPORE****FIKE ASIA PACIFIC SDN BHD**

18B Jalan Astaka L U8/L, Bukit Jelutong,
40150 Shah Alam, Selangor, Malaysia
Tel: +60 3 7859 1462
Fax: +60 3 7859 1461
Email: Chun-wah.leong@fike.com
Website: www.fike.com

Representative Office**SRI LANKA****BUILDING SERVICES (M&E)
ENGINEER INTERNATIONAL
PVT LTD**

122 Dawson Street, Colombo-02, Sri Lanka
Tel: +94 11 471 7500
Fax: +94 11 245 4653
Email: bldserv@sltnet.lk

Dealer/Distributor**TAIWAN****SUNMORN INC**

7F-2, 76, Nan Jing W. Road, Taipei 103, Taiwan
Tel: +886 2 2550 3500
Fax: +886 2 2550 5350
Email: merylyu@sunmoreinc.com
Website: www.sunmoreinc.com

Dealer/Distributor**THAILAND****ANTI-FIRE CO LTD**

316-316/1, Sukhumvit 22 Road
Klongtoey, Bangkok 10110, Thailand
Tel: +66 2 260 4565 9
Fax: +66 2 258 2422
Email: sithichai@antifire.com
Website: www.antifire.com

Dealer/Distributor**FIRE FIGHTING
ENTERPRISES****AUSTRALIA****AMPAC TECHNOLOGY PTY LTD**

97 Walters Drive, Perth, Australia 6017
Tel: +61 892 423 333
Fax: +61 892 423 334
Website: www.ampac.net

Dealer/Distributor**BAHRAIN****KHAYBER TRADING COMPANY**

W.L.L, PO Box No. 1976, Cr.No. 40189-01
Manama, Bahrain
Email: FX ABB 50

Dealer/Distributor**CYPRUS****M.T. PIPERARIS TRADING LTD**

Nafpactou 19a, Lemesos 3051, Cyprus
Tel: +357 5 737311
Fax: +357 5 737310

Dealer/Distributor**HONG KONG****HLK SERVICES LTD**

Room 1111, Tower B, Hung Hom
Commerc'I Centre
39 Ma Tau Wai Road,
Hung Hom, Kowloon
Hong Kong
Tel: +852 23303083
Fax: +852 23656128

Dealer/Distributor**INDIA****NITIN FIRE PROTECTION**

Industries Ltd, 501, Delta Technology St.
Hiranandani Gardens
Powai, Mumbai -400 076, India
Tel: +91 22 25700392
Fax: +91 22 25701110

Dealer/Distributor**ISRAEL****TELEFIRE FIRE & GAS**

Detectors Ltd, PO Box 7036
Petach-Tikva 49250, Israel
Tel: +972 3 9211955
Fax: +972 3 9211816

Dealer/Distributor**IRAN****NAR KOOB IRAN**

Apt 7, 3rd Floor, No 32,
Varavini St. Amir Atabak
St. Ostad Motehahri Ave.
Tehran - Iran
Tel: +98 21 88842649
Fax: +98 21 88307405

Dealer/Distributor**KOREA****HI MAX CO LTD**

Sicox Tower, 115-Ho 513-14
Sangdaewon-Dong, Jungwon-Gu
Sungnam-City, Kyungki Do, Korea
Tel: +82 31 769 7698
Email: khkim@himax119.co.kr

Dealer/Distributor**MALAYSIA****FITTERS ENG SERVS SDN BHD**

No.1 Block C
Jalan Dataran
Sd1 Pju 9
52200 Bandar Sri
Damansara
Kuala Lumpur
Malaysia
Tel: +60 3 62767155
Fax: +60 3 62758712

Dealer/Distributor**NEW ZEALAND****AMPAC INDUSTRIES LIMITED**

PO Box 100-149
North Shore Mail Centre
Glenfield, Auckland
Tel: +64 94438072
Fax: +64 94438073

Dealer/Distributor**QATAR****AL SHAIBEH ESTABLISHMENT**

PO Box 3975, Doha, Qatar
Tel: +974 4322140
Fax: +974 4416650

Dealer/Distributor**SINGAPORE****ACCLAIM SYSTEMS PTE LTD**

Blk 104, Boon Keng Road, 05-01
Singapore 339775
Tel: +656 2990 798
Fax: +656 299 3735

Dealer/Distributor**ALARM SUPPLY PTE LTD**

63 Jalan Pemimpin, 03-07,
Pemimpin Industrial Bldg
Singapore 577219
Tel: 00 656 258 3445
Fax: 00 656 258 6428

Dealer/Distributor**SRI LANKA****FIRETECH (PVT) LTD**

34, Walter Gunasekara
Mawatha, Nawala, Sri Lanka
Tel: +94 1 806613
Fax: +94 1 806666

Dealer/Distributor**SYRIA****ESS COMPANY**

PO Box 35478, Damascus, Syria

Dealer/Distributor**TAIWAN****HORING LIH IND CO LTD**

4f No 18 Lane 327, Chung Shan Road
Sec 2 Chung-Ho-City
Taipei Hsien, Taiwan
Tel: +886 2224 87599
Fax: +886 2224 07752

Dealer/Distributor**THAILAND****TEEYA MASTER SYSTS CO LTD**

100/101-102 Vongvanji, Building B
30th Fl, Rama 9 Road
Huaykhwang
Bangkok 10320
Thailand
Tel: +662 2 6451130
Fax: +662 2 2488540

Dealer/Distributor**UNITED ARAB EMIRATES****NAFFCO**

PO Box 17014, Jebel Ali Free Zone Area
Dubai, U.A.E
Tel: +971 4 881 5653
Fax: +971 4 881 6229
Email: girish@naffco.ae

Dealer/Distributor**TELECTRON**

PO Box 2946, Al Salam Street
Bldg. No.5, Abu Dhabi, U.A.E
Tel: +971 26795333
Fax: +971 26794609

Dealer/Distributor**HOLMATRO RESCUE
EQUIPMENT****AUSTRALIA****CHUBB FIRE SAFETY LTD**

120, Silverwater Road
Silverwater, NSW 2128
Locked Bag 102, Silverwater 1811
Contact: Andrew Loftus
Tel: 1300 369 309
Fax: 02 8748 7450
Email: firesafety@chubb.com.au
Website: www.chubb.com.au

Dealer/Distributor**CHINA****HOLMATRO CHINA****UNIT 14/D - 9 JOY TOWER**

9 Zhen Ning Road, Shanghai 200050, P. R. China
Contact: Floris Evers
Tel: +86 21 5238 7330
Fax: +86 21 5238 7320
Email: china@holmatro.com
Website: www.holmatro-china.com

Representative Office

HONG KONG**ABLESLINK CO LTD**

Unit B4, 2/F., Block B
Sheung Shui Plaza
3 Ka Fu Close
Sheung Shui, N.T.
Hong Kong
Contact: Mr Randy Hau
Tel: +852-2466 4568
Fax: +852-2466 4569
Email: ableslink@yahoo.com
Dealer/Distributor

INDONESIA**PT ESA KARYA MANDIRI
JL.SUNTER PARADISE**

Timur Raya, F21 No.C42
Jakarta 14350
Contact: Mr Benny N Liem
Tel: 062-21-6412936/65303502
Fax: 062-21-6412937
Email: esakarya@cbn.net.id
Dealer/Distributor

JAPAN**AKAO & CO LTD**

4-13-1 Shinmachi Nishi-ku
Osaka, Japan 550-0013
Contact: Masaya Saga
Tel: +81-6-6532-6256
Fax: +81-6-6532-3095
Email: info@akao-co.co.jp
Website: www.akao-co.co.jp
Dealer/Distributor

KOREA (SOUTH)**KEO WHA HITEC CO LTD**

Rm-1F1, Jiwoo Bldg, 376-12
Seogyo-dong, Mapo-gu
Seoul, Korea
Contact: Mr Kenneth Zyung
Tel: 82-(02)-336-0145-7
Fax: 82-(02)-336-0180
Email: jfckenneth@yahoo.co.kr
Website: www.kh-hitec.com
Dealer/Distributor

MALAYSIA**PANDAN NIAGA SDN BHD**

No. 81A, Jalan Tabla 33/21
Shah Alam Technology Park
Seksyen 333
40400 Shah Alam
Selangor Darul Ehsan
Malaysia
Contact: Mohd Rashdi Abd Rahman
Tel: +603 5122 1310
Fax: +603 5122 1279
Email: pnsb@pn.com.my
Dealer/Distributor

NEW ZEALAND**CHUBB FIRE & SAFETY**

3 Fisher Crescent
Mt Wellington
Auckland
Contact: Steve Kirk
Tel: +64 9 270 7441
Fax: +64 9 270 7235
Email: fireandsafety@chubb.co.nz
Website: www.chubb.co.nz
Dealer/Distributor

PHILIPPINES**WALLGREEN INDUSTRIAL VENTURES
CORP**

62 West Avenue, Quezon City
Philippines 1104
Contact: Francisco C Dizon
Tel: +6 32 411 0818
Mobile: +6 32 0917 820 1947
Fax: +6 32 411 0818
Email: wivcor@yahoo.com
Dealer/Distributor

TAIWAN**PARKSON TRADING CO LTD**

No. 50, 3F, Hua-Ning Rd,
Guo Shan Dist., 80471 Kaohsiung City,
Taiwan, R.O.C.
Contact: Mr Johnson Peng
Tel: +886-7-552-1650
Fax: +886-7-552-7999
Email: ptckpeng@parkson.com.tw
Dealer/Distributor

LANCIER**AUSTRALIA****FIRE & SAFETY WA**

Unit 2/63 Furniss Road, Landsdale WA
Contact: Kerry Lovett
Tel: +61 89 3023210
Fax: +61 89 3026110
Email: firewa@fireandsafetywa.com.au
Website: www.fireandsafetywa.com.au
Dealer/Distributor

BANGLADESH**ARION OVERSEAS**

186/1 Inner Circular Road
1000 Dhaka
Bangladesh Motijheel
Tel: +880 27101369
Fax: +880 27100043
Email: arion@bdcom.com
Dealer/Distributor

BRUNEI**HANG SAN HARDWARE**

A13 & A14 Warisan Complex/Jln. Gadong,
BE3919/PO Box 1770/Bandar Seri Begawan
BS8673
Tel: +67 324 7995
Email: hangsanbsb@yahoo.com
Dealer/Distributor

HONG KONG/CHINA/MACAU/TAIWAN**GRAND POWER ENGINEERING**

Tower A Room 503, Hung Hom
Kowloon, Hong Kong
Tel: +852 2365 52525
Fax: +852 2764 0237
Email: info@howswing.com
Website: www.howsing.com
Dealer/Distributor

INDIA**NEW AGE INDUSTRIES**

Ambawadi Industrial Estate
Gujarat
Tel: +91 2752 243651
Fax: +91 2224 074229
Email: neage@bom3.csnl.net.in
Website: www.newage-india.com
Dealer/Distributor

INDONESIA**P.T. SABERINDO PACIFIC**

Kompleks Ruko Cempaka Mas/
Blok J No. 10 Jl./Letjen Suprpto/
10640 Jakarta
Tel: +62 214 2888282
Fax: +62 214 2884704
Email: saberindo@saberindo.co.id
Dealer/Distributor

KOREA**HOVERTECH**

Sejin Bronzville 1415
Maesanro 1 Ga, Paldalu
442-081 Suwon
Tel: +82 312571415
Fax: +82 312571415
Email: cclee@ihovertech.com
Dealer/Distributor

MALAYSIA**LSL-MERCURY**

11, Jalan 31/63, Kota Kemuning, Section 31
40706 Shah Alam, Selangor D.E.
Tel: +60 35 222811
Email: maclsl@pd.jaring.my
Dealer/Distributor

NEW ZEALAND**LANCIER SOUTHWEST PACIFIC LTD**

64-66 Huia Road, Auckland, New Zealand
Tel: +64 9 276 0405
Fax: +64-9-276 6215
Representative Office

PAKISTAN**AHMAD MEDIX (PVT) LTD**

129/6 Quaid-e-Azam Industrial Estate
Township, Lahore
Tel: +92 42 5213441
Fax: +92425213441
Email: info@ahmadmedix.com
Dealer/Distributor

SINGAPORE**MCALISTER & COMPANY LTD**

257 Jalan Ahmad Ibrahim SG, 62914 Singapore
Tel: +65 6266 3088
Fax: +65 6265 7863
Dealer/Distributor

THAILAND**EMPIRE TECH CO LTD**

26/13-14, 26/15 Suit 101, 11140 Nonthaburi
Tel: +662 595 5027
Fax: +662-595-5029
Dealer/Distributor

VIETNAM**ANH HONG TECHNOLOGY
DEVELOPMENT CO**

133 Thai Ha Str., Hanoi
Tel: +84 4 3537 4250
Fax: +84-4 3537 4280
Email: anhong-tdc@hn.vnn.vn
Dealer/Distributor

**PERMALIGHT (ASIA)
CO LTD****HONG KONG****PERMALIGHT (ASIA) CO LTD**

4/F Waga Commercial Centre
99 Wellington Street, Central Hong Kong
Tel: +852 2815 0616
Fax: +852 2542 3269
Email: pila@pilatorch.com
Website: www.pilatorch.com
Representative Office

**SCOTT HEALTH &
SAFETY****AUSTRALIA/NEW ZEALAND****SCOTT HEALTH & SAFETY –
AUSTRALIA/NEW ZEALAND**

137 McCredie Road, Guildford
NSW 2161, Australia
Email: shscs@tycoint.com
Representative Office

**SCOTT HEALTH & SAFETY –
AUSTRALIA/NEW ZEALAND**

Unit 4, Deakin Street
Brendale, QLD 4500, Australia
Tel: +61 7 3804 6814
Fax: +61 7 3204 3807
Email: Scottmarketing.anz@tycoint.com
Website: www.scotthealthsafety.com
Representative Office

CHINA**SHANGHAI EAGLE SAFETY EQUIPMENT LTD**

No. 1, Lane 955, Jinhai Rd, Pudong Shanghai
Tel: +86 (0) 21 6163 3376
Fax: +86 (0) 21 6163 3372
Website: www.eagle-sh.com

Dealer/Distributor**SINGAPORE****SCOTT HEALTH & SAFETY**

No. 2 Serangoon North Avenue 5
#07-01, Singapore 554911
Contact: Tom Barrett
Tel: +(65) 9823-5700 Fax: +(65) 6245-6718
Email: tbarrett@tycoint.com

Representative Office**SECURITON****ASIA PACIFIC****SECURITON (M) SDN BHD**

No. 19A, Lorong Rahim Kajai 13
Taman Tun Dr. Ismail
MY-60000 Kuala Lumpur, Malaysia
Contact: Mr Lewis Chong
Tel: +60 3 7725 1699
Fax: +60 3 7725 1677
Email: asia@securiton.com.my
Website: www.securiton.com

Representative Office**AUSTRALIA****AUSTRALIAN FIRE ENTERPRISES (AFE)**

P.O. Box 7027, Manner Park
NSW 2259, Australia
Contact: Mr Mike Donegan/Mr Brett Gordan
Tel: 61 2 43 592 244
Fax: 61 2 43 593 301
Email: sales@austfire.com.au / afe@ozemail.com.au

Dealer/Distributor**NATIONAL SECURITY & SURVEILLANCE**

38 Lambert Street Richmond
Victoria 3121, Australia
Contact: Mr Dominic Paruit
Tel: +61 3 9428 8055
Fax: +61 3 9428 8065
Email: dominic.paruit@natss.com.au
Website: www.natss.com.au

Dealer/Distributor**CHINA, BEIJING****SWISS SECURITAS FIRE AND SECURITY SYSTEMS TECHNOLOGY (BEIJING) CO LTD**

Room 1808-11
18th Floor Shichuang Mansion
No.6 North Street
Chaoyangmen
Dongcheng Area
Beijing 100027
P.R.China
Contact: Mr Lewis Chong/Mr Todd Zeng
Tel: +86 10 6406 0558
Fax: +86 10 6406 6934
Email: todd.zeng@securiton.cn
Website: www.securiton.cn

Dealer/Distributor**BEIJING Z-N MECHANICAL & ELECTRICAL EQUIPMENT CO LTD**

1 #B910,Lingdi Office
No.13 Beiyuan Lu
Chaoyang District Beijing
China 100012
Contact: Ms Sarah Zhang
Tel: 86 10 5207 3836
Fax: 86 10 5207 3839
Email: sarahzh@vip.sina.com / bjzhongna@yahoo.com.cn

Dealer/Distributor**CHINA, SHANGHAI****SWISS SECURITAS (BEIJING) CO LTD SHANGHAI COMPANY**

Room A
23rd Floor Shimei Mansion
No. 445 Jiangning Road Jing'an Area
Shanghai 200041
P.R.China
Contact: Mr Lewis Chong/Mr Todd Zeng
Tel: +86 21 5228 8111
Fax: +86 21 5228 8325
Email: todd.zeng@securiton.cn

Dealer/Distributor**SHANGHAI ZHENYE INDUSTRY CO LTD**

No, 3 221, Cao Bao L
Shanghai, 200233
Contact: Mr Jack Shen
Tel: 86 21 6451 2922/2933
Fax: 86 21 6451 9955
Email: sy1199@163.com
Website: www.shzhenye.com

Dealer/Distributor**CHINA, SHENZHEN****SHENZHEN YAOHUAJI CHINA CO LTD**

RM.F, 20th Floor Yong – Hui Building
Guo-Qi Building
Shenzhen
Contact: Mr Raymond Ng/Ms Shi
Tel: +86 755 8212 9831
Fax: +86 755 8212 9909
Email: rng@ywk.com.hk
Website: www.ywk.com.hk

Dealer/Distributor**HONG KONG****YIU WAH (KOGARAH) CO LTD**

Room 901, 9th Floor,
No 113 Argyle Street
Mongkok, Kowloon
Hong Kong
Contact: Mr Raymond Ng
Tel: +852 2781 1384
Fax: +852 2782 6652
Email: ywk@ywk.com.hk
Website: www.ywk.com.hk

Dealer/Distributor**INDIA, MUMBAI****BAJAJ ELECTRICALS LTD**

15/17, Sant Savta Marg, Reay Road
Mumbai – 400010
Contact: Mr Ravichandran Sr. (General Manager)
Tel: +91 22 2372 4192
Fax: +91 22 2373 0504
Email: bms@bajajelectricals.com
Website: www.bajajelectricals.com

Dealer/Distributor**VIMAL FIRE CONTROLS PVT LTD**

19/20 Vardhaman Service
Industrial Estate, L.B.S. Marg.
IN-400083 Vikhroli (West) Mumbai
India
Contact: Mr Vijay Doshi/Mr Nalin Doshi
Tel: +91 22 2578 3335
Fax: +91 22 2578 3338
Email: nalinvimalfire.com / faigun@vimalfire.com
Website: www.vimalfire.com

Dealer/Distributor**HSE ENGINEERS PVT LTD**

2, Durgas Niwas, 1st Floor
Bhawani Tower Compound
Behind Bhawani Petrol Pump
IIT Powai, Mumbai 400076, India
Contact: Mrs Sapna Prajapati
Tel: +91 22 2578 7014 / 7015
Fax: +91 22 2578 7016
Email: hsemumbai@hseengineers.com
Website: www.hseengineers.com

Dealer/Distributor**KOREA (SOUTH)****ROYAL INDUSTRIAL TECHNOLOGY CORPORATION**

Royal Building, 3rd Floor
840-5 Yeoksam-Dong
Kangnam-Ku, Seoul 135080, Korea
Contact: Mr E S Kim/Mr J K Chung
Tel: +82 22 009 1800
Fax: +82 2 567 8831
Email: kes@ritco.co.kr / jkchung@ritco.co.kr
Website: www.ritco.co.kr

Dealer/Distributor**MALAYSIA****FITTERS SDN BHD**

No, 1 Jalan Tembaga SD5/2
Sri Damansara
52200 Kuala Lumpur
Contact: Dato' Richard Wong
Tel: +60 3 6276 7155
Fax: +60 3 6175 2780
Email: eugene@fittersgroup.com
Website: www.fittersgroup.com

Dealer/Distributor**SYARIKAT LETRIK CHEN GUAN SDN BHD**

Lot 1178 Jalan Subang 3
Taman Industri Sg.
Penaga, 47610 Subang Jaya
Selangor
Malaysia
Contact: Mr Choong Yew Lim
Tel: +603 5634 1436
Fax: +603 5634 2349
Email: chenguan@streamyx.com

Dealer/Distributor**PAKISTAN****EVERGREEN DEVELOPMENT CORPORATION**

Suite # 514, 5th Floor, Clifton Centre
Block 5 Kehkashan, Clifton
Karachi 75600, Pakistan
Contact: Mr Munawar Afridi
Tel: +92 21 5873 448
Fax: +92 21 5870 080
Email: genco@cyber.net.pk
Website: www.edcpl.com

Dealer/Distributor**SINGAPORE****SWISS SECURITAS ASIA PTE LTD**

56 Serangoon North Ave 4, #06-03
Singapore 555851
Contact: Mr Andy Gan/Mr Michael Boon
Tel: +65 6853 8066
Fax: +65 6853 5939
Email: mike.boon@securitas.sg
Website: www.securitas.sg

Dealer/Distributor**TAIWAN****ATLAS TECHNOLOGY CORPORATION**

22F, No 1 Bausheng Road, Yunghe City
Taipei, Taiwan 234, R.O.C.
Contact: Mr David Liu
Tel: +886 2 223 20 556
Fax: +886 2 223 16 657
Email: david@atlasgroup.com.tw / hunter@atlasgroup.com.tw
Website: www.atlasgroup.com.tw

Dealer/Distributor**KGIC TECHNOLOGY CO LTD**

No. 49 Goang Shi Road
Kaohsiung 806, Taiwan R.O.C.
Contact: Mr Franco Lee
Tel: +886 7 715 4285
Fax: +886 7 715 4401
Email: lic@ms9.hinet.net
Website: www.gictec.com.tw

Dealer/Distributor

UNIVERSAL PATHS DEVELOPMENT CORPORATION (UPDC)

9F-1, 306, Sec. 1, NeiHu Road
Taipei 114, Taiwan R.O.C.
Contact: Mr Terry Chung/Ms Ellie Chou
Tel: +886 2 8751 6055
Fax: +886 2 8751 6053
Email: ellie@updc.com.tw
Website: www.updc.com.tw
Dealer/Distributor

S. K. ROSENBAUER PTE LTD**SINGAPORE**

8 Tuas Drive 2, Singapore 638643
Tel: +65 6862 3155
Fax: +65 6862 0273
Email: bob.houchin@skrosenbauer.com
Website: www.skrosenbauer.com

SOLBERG SCANDINAVIAN AS**AUSTRALIA**

SOLBERG ASIA PACIFIC PTY LTD
P.O. Box 182, Kingswood NSW 2747
Australia
Contact: Ted Schaefer (Technical Manager)
Tel: 61 2 9673 5300
Email: ted@solbergfoams.com
Website: www.solbergfoams.com
Representative Office

MALAYSIA

RHINOSHIELD INDUSTRIES(M) SDN BHD
H-0-5 Ground Floor Plaza Damas
No. 60 Jalan Sri Hartamas 1
Sri Hartamas
50480 Kuala Lumpur
Malaysia
Contact: C K Lim (General Manager)
Tel: +603 62033850
Fax: +603 62032245
Email: rhinoshield@pd.jaring.my
Dealer/Distributor

TASK FORCE TIPS INC**AUSTRALIA**

GAAM EMERGENCY PRODUCTS
29 Temple Dr., P.O. Box 211
Thomastown, Victoria 3074, Australia
Tel: +61 3 9466 1244
Fax: 61 3 9466 4743
Email: iprice@tycoint.com
Website: www.gaam.com.au
Dealer/Distributor

CHINA**SHANGHAI JINDE INDUSTRY DEVELOPMENT CO LTD**

Room 610, 1 Lane 50, Xin Cun Road,
Shanghai, 200065, China
Tel: +86 21-360-50599
Fax: +86 21-360-55599
Email: jmgushon@online.sh.cn
Dealer/Distributor

HONG KONG**ROTTER INTERNATIONAL LIMITED**

Unit A G/F., Hung To Road,
6-8 Hung To Road
Kowloon, Hong Kong
Tel: 85227517770
Fax: 85227562051
Email: jacky@rotter.com.hk
Dealer/Distributor

INDIA**FOREMOST TECHNICO PVT LIMITED**

M-1, Green Park Extension, New Delhi 110016, India
Tel: +91 (11) 2619 6982
Fax: +91 (11) 2616 6961
Email: foremost@hathway.com
Website: www.foremost-india.com
Dealer/Distributor

INDONESIA**PT PALMAS ENTRACO**

Jl. Krekot 85, Jakarta-Pusat, Indonesia
Tel: +62 (21) 384 1681
Fax: +62 (21) 380 2660
Email: ptpalmas@attglobal.net
Dealer/Distributor

JAPAN**YONE CORPORATION**

23, Nishinakaai-Cho, Nishinokyo
Nakagyo-Ku, Kyoto 604, Japan
Tel: +81 (7) 582-11185
Fax: +81 (7) 580-12263
Email: t.yone@myad.jp
Website: www.yone-co.co.jp
Dealer/Distributor

KOREA (SOUTH)**SHILLA FIRE CO LTD**

433-11 Non Hon-Dong, Nam Dong-Gu,
Inchon City 405-300, South Korea
Tel: +82-02-3665 9011
Fax: +82-02-3663 9113
Email: kofire77@hotmail.com
Website: www.firekorea.com
Dealer/Distributor

MALAYSIA**SENTRIX TECHNOLOGY SDN BHD**

No. 2A-2, 1st Floor Jalan USJ 21/7
UEP Subang Jaya, 47630 Subang Jaya
Selangor Darul Ehsan, Malaysia
Tel: +603 8023-5228
Fax: +603 8023-5618
Email: chong@sentrrix.com.my
Website: www.sentrrix.com
Dealer/Distributor

PAKISTAN**FIRESTOP PVT LIMITED**

6/B, 1st Floor, Dinar Chambers, P.O. Box # 5786,
West Wharf Road, Karachi-74000, Pakistan
Tel: 9221-2315675, 2313065
Fax: 9221-2310457, 5831015
Email: info@firestopaids.com
Website: www.firestopaids.com
Dealer/Distributor

PHILIPPINES**ALLIANCE INDUSTRIAL SALES**

Unit 4, Finlandia Town Homes
#1700 Dian, cor. Finlandia Street
Brgy, San Isidro, 1234 Makati City, Philippines
Tel: +63 21 7546 1749
Fax: +63 2 887 7173
Email: alliance8_jcy@pacific.net.ph
Dealer/Distributor

SINGAPORE**S.K. FIRE PTE LTD**

8 Tuas Drive 2, Singapore 638643, Singapore
Tel: +65 6862 3155
Fax: +65 6862 0273
Email: houchin@skfire.com
Website: www.skfire.com
Dealer/Distributor

TAIWAN**YONE CORPORATION**

23, Nishinakaai-Cho, Nishinokyo
Nakagyo-Ku, Kyoto 604, Japan
Tel: +81 (7) 582-11185
Fax: +81 (7) 580-12263
Email: t.yone@myad.jp
Website: www.yone-co.co.jp
Dealer/Distributor

THAILAND**ANTI-FIRE, CO LTD**

316-316/1, Sukhumvit 22 Road
Klongtoey Klongtoey, Bangkok 10110, Thailand
Tel: 6622596898
Fax: 6622582422
Email: sithichai@antifire.com
Website: www.antifire.com
Dealer/Distributor

TYCO FIRE SUPPRESSION & BUILDING PRODUCTS**SINGAPORE****TYCO FIRE SUPPRESSION & BUILDING PRODUCTS**

2 Serangoon North Avenue 5, #07-01 Fu Yu
Building, Singapore 554911, Singapore
Tel: (+65) 6577 4360
Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com
Representative Office

ANSUL

2 Serangoon North Avenue 5, #07-01 Fu Yu
Building, Singapore 554911, Singapore
Tel: (+65) 6577 4360
Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com
Website: www.ansul.com
Representative Office

HYGOOD

2 Serangoon North Avenue 5, #07-01 Fu Yu
Building, Singapore 554911, Singapore
Tel: (+65) 6577 4360
Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com
Website: www.hygood.co.uk
Representative Office

PYRO-CHEM

2 Serangoon North Avenue 5, #07-01 Fu Yu
Building, Singapore 554911, Singapore
Tel: (+65) 6577 4360
Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com
Website: www.pyrochem.com
Representative Office

SKUM

2 Serangoon North Avenue 5, #07-01 Fu Yu
Building, Singapore 554911, Singapore
Tel: (+65) 6577 4360
Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com
Website: www.skum.com
Representative Office

SABO FOAM

2 Serangoon North Avenue 5, #07-01 Fu Yu
Building, Singapore 554911, Singapore
Tel: (+65) 6577 4360
Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com
Website: www.sabofoam.com
Representative Office

W. S. DARLEY**CHINA**

Room 1-1-12-1, Blvd. A, Yida New World,
No. 137 Wusi Road, XiGang District
Dalian, P. R. 116021
Contact: Bo Zhang
Tel: 011 86 411 8 4371682
Fax: 011 86411 84371680
Email: bozhang@wsdarley.com.cn
Representative Office

Room 111A, Zhong Hai Zi Jin Yuan, Wanshou,
Haidian District, Beijing, P. R. 100081
Contact: Liu Long
Tel: 011 86 10 88421945
Fax: 011 86 10 88422802
Email: liulong@wsdarley.com.cn
Representative Office

SUBSCRIPTIONS

ASIA PACIFIC FIRE MAGAZINE

GET YOUR SUBSCRIPTION NOW!!!



**APF IS PUBLISHED 4 TIMES A YEAR
– MARCH, JUNE, SEPTEMBER
AND DECEMBER**

Name: _____

Company/Organisation: _____

Address: _____

Telephone: _____

Fax: _____

E-mail: _____

Start Subscription from Issue: _____

Subscription Rates: Sterling £50.00 AUS Dollars – \$100.00

US Dollars – \$70.00

Back Issues: US \$8.00 or £5.00 each inclusive of P&P
(subject to availability)

METHODS OF PAYMENT:

Website Subscription: www.mdmpublishing.com

Cheque: _____ MDM Publishing Ltd.

Visa/Mastercard No: _____

Expiry Date: _____ Security Code: _____
(last three digits on reverse of card)

If paying by credit card please fax details. DO NOT post/mail.
Fax: +44 (0) 1935 426926

MDM Publishing Ltd.

The Abbey Manor Business Centre, The Abbey, Preston Road,
Yeovil, Somerset BA20 2EN, United Kingdom

ADVERTISERS' INDEX

Albert Ziegler GmbH & Co. KG	47
Angus Fire	54
Bauer Compressors Asia Pte Ltd	59
Black Diamond Group Inc	61
Blucher GmbH	41
Bio-Ex	35
Bristol Uniforms Ltd.	27
Bullard	43
Chemguard Inc	22
Control Logic s.r.l.	37
Cutters Edge	29
Dafo Fomtec	25
Detector Electronics Corporation	33
Draeger Safety Asia Pte Ltd.	IBC
Dr. Sthamer Hamburg	OBC
Dynax Corporation	17
Fike Corporation	30
Fire & Rescue Asia 2009	19
Fire Fighting Enterprises	35
Firetrace International	51
Gielle Srl	06
Groupe-Leader France	21
Holmatro Rescue Equipment	64
Iveco Magirus Fire Fighting GmbH	53
Lancier Hydraulik Co. KG	58
NFPA	02
Niedner	68
Permalight (Asia) Co Ltd	65
Plastika Akrapovic	38
Savatech d.o.o.	21
Scott Health & Safety	57
Securiton AG	33
SK Rosenbauer Pte Ltd	43
Solberg Asia Pacific Pty. Ltd.	27
Streamlight	62
Task Force Tips, Inc.	IFC
Texas A & M Emergency Services Training Institute	41
Tyco Fire Suppression & Building Products – Asia Pacific – Ansul	15
Underwater Kinetics	67
Unifire Power Blowers	12
W.S. Darley Inc	44
Ziamatic Corporation	48

Developed by Professionals For the Professionals



Dräger FPS 7000
Dräger PSS 7000

A product developed for extreme conditions

The Dräger PSS 7000 is the result of Dräger's ongoing commitment to providing professional fire fighters with a world class state-of-the-art breathing apparatus.

Key new features of the PSS 7000 is the harness that uses advanced materials and moulding methods to produce exceptional wear resistance and a high grip anti-slip surface to ensure that the harness remains secure on the body.

With easier seamless integration and interface with the facemask, communication equipment, head protection and good ergonomic design to create a higher performance personal safety system, the Dräger PSS 7000 is a major leap forward in the evolution of breathing apparatus for the professional fire fighter.

**You can rely on
Dr Sthamer – Hamburg
For all your foam needs
AFFF, AR-AFFF
Training Foams
Fluorine Free Foam**

FOAM FIGHTS FIRE

Proven Reliability.

**24/7 Emergency Supplies
From Stock**

Synthetic Foams

- Moussol APS
- Moussol FF **NEW!**
- Sthamex AFFF
- Sthamex
- Sthamex class A

Protein Foams

- Fluor-Foamousse
- Foamousse FFFP
- Foamousse OMEGA
- Foamousse

Ready To Use Foams

- Fettex
- Mousseal-C
- Mousseal-CF
- Mousseal-ATC

Training Foams

24/7

**EMERGENCY
SUPPLIES**

+49 40 736 16 80

We offer a comprehensive range of high performance and environmentally friendly foams.



Dr. STHAMER HAMBURG

Head Office and Factory Hamburg
Liebigstrasse 5 · D-22113 Hamburg
Phone: +49 40 736168-0
Telefax: +49 40 736168-60
E-Mail: info@sthamer.com · www.sthamer.com

International Sales Contact
Mr. Jan Knappert
Phone: +44 (0) 7795 101770
E-mail: jknappert@sthamer.com



APF

An MDM PUBLICATION
Issue 32 – December 2009

www.mdmpublishing.com

ASIA PACIFIC FIRE MAGAZINE



REPORTING TO THE ASIA PACIFIC FIRE PROTECTION AND FIRE SERVICE INDUSTRY

TASK FORCE TIPS, INC.



3701 Innovation Way, Valparaiso, IN 46383-9327 USA
International +1.219.548.4000 • www.tft.com • intsales@tft.com



AUTOMATIC NOZZLES WITH STAINLESS STEEL SPINNING TEETH

Mid-Range 260 - 760 l/min



Standard 7 bar Setting



Low Pressure Setting

For excellent quality fire fighting equipment visit www.tft.com and call your local distributor for a demonstration.

Remote Controlled and Manual Monitors



ATEX Version Available 
4500 l/min
Hurricane Remote Controlled
and Manual Monitor



ATEX Version Available 
6000 l/min
Typhoon Remote Controlled
and Manual Monitor



ATEX Version Available 
8000 l/min
Monsoon Remote Controlled
and Manual Monitor



AUSTRALIA

Gaam Emergency Products-AU
Phone : 61394661244
Fax : 61394664743
iprice@tycoint.com
www.gaam.com.au



INDIA

Foremost Technico Pvt Ltd
Phone: +91 (11) 2619 6982
Fax: +91 (11) 2616 6961
foremost@hathway.com
www.foremost-india.com



MALAYSIA

Sentrix Technology Sdn Bhd
Phone: +603 8023-5228
Fax: +603 8023-5618
chong@sentrix.com.my
www.sentrix.com.my



SINGAPORE

S.K. Fire Pte. Ltd.
Phone: 6568623155
Fax : 6568620273
houchin@skfire.com
www.skfire.com



CHINA

Shanghai Jin De Industry
Phone: 862136050599
Fax: 862136055599
sjinde@163.com
www.sjinde.com



INDONESIA

Pt Palmas Entraco
Phone: 6221384 1681
Fax: 6221380 2660
sales@palmas.co.id



NEW ZEALAND

Tyco Safety Products
Phone: 6445608127
Fax: 6498270844
tsp.sales.nz@tycoint.com
www.tycoservices.co.nz



SOUTH KOREA

Shilla Fire Co., Ltd.
Phone: 820236659011
Fax: 820236639113
kofire77@hotmail.com
www.firekorea.com



HONG KONG

Rotter International Ltd.
Phone: 85227517770
Fax: 85227562051
jacky@rotter.com.hk
www.rotterbiz.com



JAPAN / TAIWAN

Yone Corporation
Phone: 81758211185
Fax: 81758012263
t.yone@myad.jp
www.yone-co.co.jp



PHILIPPINES

Alliance Industrial Sales
Phone: 6328908818
Fax: 6328960083
alliance8_jcy@pacific.net.ph



THAILAND

Anti-fire Co., Ltd.
Phone: 66 2 259-6898
Fax: 66 2 258-2422
sithichai@antifire.com
www.antifire.com

www.tft.com

December 2009 Issue 32



Front Cover Picture: Bushfire in Ngarkat. Courtesy of Bushfire CRC

Publishers

Mark Seton & David Staddon

Editorial Contributors

Konrad Marshall, Mariann McDonagh, Mike Tarbard, Dr. Wolfram Krause, Nils Falter, Anna Maria Mrcela, Richard Niemann, Duncan White, Craig Kelsall

APF is published quarterly by:
MDM Publishing Ltd
The Abbey Manor Business Centre,
The Abbey, Preston Road, Yeovil,
Somerset BA20 2EN, United Kingdom
Tel: +44 (0) 1935 426 428
Fax: +44 (0) 1935 426 926
Email: mark.seton@apfmag.com
Website: www.mdmpublishing.com

©All rights reserved

Subscription Rates
Sterling – £50.00
AUS Dollars – \$100.00
US Dollars – \$70.00
(Prices include Postage and Packing)
ISSN – 1476-1386

DISCLAIMER:

The views and opinions expressed in ASIA PACIFIC FIRE MAGAZINE are not necessarily those of MDM Publishing Ltd. The magazine and publishers are in no way responsible or legally liable for any errors or anomalies made within the editorial by our authors. All articles are protected by copyright and written permission must be sought from the publishers for reprinting or any form of duplication of any of the magazines content. Any queries should be addressed in writing to the publishers.

Reprints of articles are available on request. Prices on application to the Publishers.

Page design by Dorchester
Typesetting Group Ltd
Printed in Singapore

Contents

05 NFPA Foreword

07-17 News & Product Profiles

19-22 Mapping Bushfire Potential

25-30 Industrial Strength Fire & Smoke Protection

33-36 Thermal Imaging - Getting the Inside Story

39-40 Fire Extinguishers

43-46 Innovative Approaches to 21st Century Special Hazards Fire Protection

49-52 Speeding Safety Systems - Ensuring Safety is of Paramount Importance

55-56 Fire Service College - A World Force in Fire Service Development

58-63 Distributor & Representative Office Listing

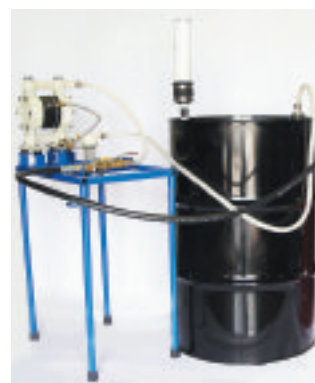
64 Advertisers' Index



33-36



39-40



43-46



49-52



07-17



19-22



25-30



MDM Pu
WORLDWIDE

www.mdmpu

Hi-Tech P

FEATU

VIRTUAL ELECTRONIC MAGAZINES

BANNER ADVERTISEMENTS

FULL PDF FILE DOWNLOADS

LIVE LINKS

**SIMPL
COMPA**

MDM Publishing Ltd, The Abbey Manor Business Centre,

Tel: +44 (0) 1935 426 428

www.mdmpublishing.com

blishing Ltd
MEDIA

blishing.com **ortal Site** **RING**

FULL VIRTUAL ARCHIVE OF BACK ISSUES

LIVE REAL PAGE TURNING SOFTWARE

EVENTS PAGE

AND MUCH, MUCH MORE ...

Y NO **RISON**



The Abbey, Preston Road, Yeovil, Somerset BA20 2EN, UK

Fax: +44 (0) 1935 426 926

www.mdmpublishing.com

MEMBERSHIP



Up-To-Date? It's Up to You!

NFPA® membership is indispensable for more than 81,000 professionals worldwide. What about you? It's an easy decision for anyone involved with protecting people and property, because NFPA keeps members on top of breakthroughs, research, and technology...and in control of their careers. **Join now and SAVE 10%** on NFPA codes, products, and seminars, while **you stay up-to-date** with:

- **NFPA Journal®**, the award-winning bimonthly membership magazine loaded with articles, codes and standards information, investigations, case studies, and reports
- Answers to your code questions from NFPA's experienced fire protection specialists
- Online issues of **NFPA News** for codes and standards activities, and **NFPA Update** for training opportunities and events
- FREE membership in any of 16 industry-specific sections including Fire Service; Building Fire Safety Systems; Health Care; Electrical; and Architects, Engineers, and Building Officials
- The latest **NFPA Journal Buyers' Guide**—your bonus gift valued at \$40

Gain a decided advantage on the job. Join NFPA today!

Become part of the world's largest organization for fire, electrical, and building safety professionals and stay up-to-date for only \$150 annual dues—satisfaction guaranteed.

**To join call 1-617-770-3000, or visit
nfpacatalog.org.**



By **James
M. Shannon**

NFPA President & CEO

Foreword

Marking the New Year with renewed commitment to fire safety

As we welcome the Western New Year and new beginnings, it is also a time to pay homage to tragic events from the past and learn from them.

As people join with good friends and family to mark the transition into a New Year, many flock to destinations where large groups of revelers gather for shared celebration. The people gathered at the Santika Nightclub in Bangkok, Thailand last year to celebrate the New Year had no idea that a fire would quickly turn their festivities into a tragedy. As the first anniversary of the blaze is upon us, it is a time to pay tribute to the 66 people who were killed and the more than 200 injured. It is also a time to look back at other significant fires at nightclubs and make it a point to remain resolute in our commitment to fire safety as we move forward into the New Year.

A few weeks ago, as 2009 was winding down, the world watched as news out of Russia told the story of yet another tragic nightclub fire. At the time this column was being written, the Associated Press was reporting that a fire at the Lame Horse Nightclub in Perm, Russia killed 148 people with approximately another 130 hospitalized, "scores of them with severe burns." There is speculation that safety standards were not followed. We have learned from history that the best way to keep people and the structures they use – whether it is where they live, work or socialize – safe from fire is through the implementation of codes and standards.

As we look back at history at the 10 deadliest nightclub fires in the world since 1970, several occurred in Asia. In February 1995, a fire at the Weierkang Club in Taichung, a three-story nightclub, restaurant, and karaoke bar killed 64 people. In the same year, a fire at a karaoke club in the Xinjiang province of China killed 51 people. In 2000, a fire that began in a shopping plaza then spread to a disco in Luoyang, China killed 309 people. A fire that began at a disco at the Saigon International Trade Center in Ho Chi Minh City, Vietnam killed 61 people and nearly all of them were at wedding reception held at a restaurant located in the same building. It seems especially tragic that the people who lost their lives in these fires were likely gathered for enjoyment and celebration.

Much can be learned from history. In the aftermath, of the Santika Nightclub fire, officials of the City of Bangkok visited multiple countries to

learn about best practices in nightclub safety. In the United States, NFPA and the Los Angeles City Fire Department provided Thai officials a tour of LA Live and entertainment campus, together with an educational presentation discussing NFPA codes and standards, Los Angeles Public Assembly Unit and their fire prevention bureau activities regarding Assembly occupancies.

In October 2009, NFPA held a three day seminar on NFPA 101, *Life Safety Code* in Bangkok. Lt. Warodom Sucharitakul, NFPA Country coordinator welcomed the participants and provided the opening remarks, "We found that there were many wrong issues needed to be corrected. The urgent one is systems and life safety, especially means of egress. We are working on restructuring the fire safety law and regulation, but it will take some time. In the short term, we decided to arrange the NFPA 101, *Life Safety Code* seminar to educate people and provide the tools for enforcement." The seminar was delivered in Thai, by NFPA member and *Life Safety Code* instructor, Pichaya Chantranuwat.

A review of some of these deadly international fires combined with US history reveals many recurring factors in these tragedies. Those factors include uncontrolled ignition sources, inadequate exits, overcrowding, flammable interior finish/contents, and no automatic sprinklers. NFPA code provisions mandate that a considerable number of safety systems and features be present to keep everyone safe should an unwanted fire occur. Since the most recent nightclub fire in the United States, The Station Nightclub in the state of Rhode Island, on February 2003, NFPA has enacted tough new code provisions for fire sprinklers and crowd management in nightclub-type venues.

It's only been a year since the Santika Nightclub fire, an international tragedy that received worldwide media coverage; and a few weeks since the Lame Horse Nightclub fire in Perm, Russia captured our attention. Many nightclubs around the world lack adequate protection and remain without basic protection: automatic sprinklers.

It seems fitting as we delve into a New Year to pay tribute to the past by renewing our commitment to fire prevention and safety with an eye toward preventing tragedies like these from happening in the future.

BOOTMAKERS TO THE WORLD

BLACK DIAMOND IS THIRD GENERATION BOOTMAKERS. WE ARE FOCUSED AND PASSIONATE ABOUT MAKING GREAT BOOTS AND PROUD TO BE WORN BY LEADING FIRE DEPARTMENTS AROUND THE WORLD.

THE INDUSTRY'S ONLY NO LINER PULL-OUT

Stock No. 277-0911

Comfort System

Comfort Fit Plus - with Eversole

Boot Height

14 Inches

Leather Upper

Black Diamond's Exclusive FireTuff™ Leather

Lining

CROSSTECH® Fabric with Omaha lining is a high performance, wicking fabric, originally developed for aggressive military applications

Lining Construction

"Stroble" boot lining construction for maximum fit

3-Point Heel Lock System

Exclusive 3-Point Heel Lock for Fit & Comfort

Kevlar Lining

Kevlar® lined for maximum protection



Pull-On System
Integrated & reinforced loop pull-on system

Fusion™ Upper

A powerful alloy of solution dye Nomex®/Kevlar® and Teflon® FPPE. Combines the durability of Nomex, the strength and abrasion resistance of Kevlar and water resistance of a patented Teflon FPPE.

Shin-guard Protector

Comfort form-fitting shin-guard provides maximum protection

Steel Toe

Hi 500, Meets or Exceeds ASTM Standards

Steel Midsole

Stainless Steel

Steel Shank

Double Ridged Steel

Toe Cap Protection

Rubber Toe Cap for high-abrasion



Footbed

3 Density Removable PU Orthotic Footbed, Fabric-covered with TPU heel cradle for overtime comfort

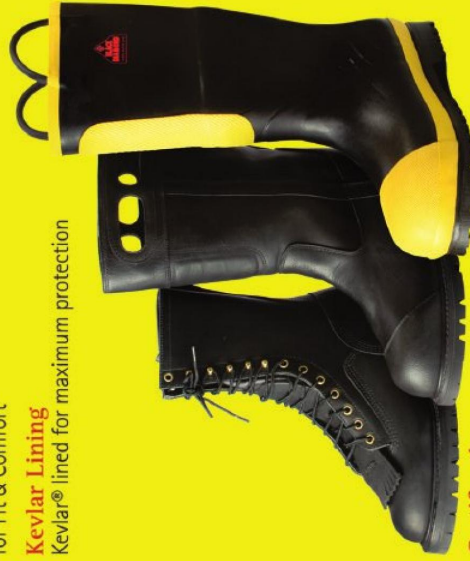
Outsole

Proprietary Rubber Comfort Cup
Sole with Comfort Flex, High-Abrasion and Traction Performance



CROSSTECH®
PRODUCTS

FUSION™



Certification

NFPA 1971-2007 Edition Standard for Structural Firefighting

BOOTS THAT FIT YOUR WALLET AND YOUR FEET.

CONTACT BLACK DIAMOND: EMAIL ALUNDER@BDFIRE.COM OR VISIT WWW.BDFIRE.COM

Firetrace® showed UL and FM approved “micro-environment” protection

FIRETRACE INTERNATIONAL showed its FIRETRACE® automatic fire detection and suppression system at the recent Fire India in Mumbai; the only UL [Underwriters Laboratories] listed, FM [Factory Mutual] approved and CE [Conformité Européenne or European Conformity] marked tube-operated system in the world that is tested as an automatic fire detection and suppression system. The ISO 9001:2008-registered company also showcased a selection of the 150,000 successful FIRETRACE installations completed around the world, including the Delhi Metro and the new third terminal at Delhi's Indira Gandhi International Airport.

The tried-and-tested system is truly unique among tube-operated systems. In addition to its endorsement by UL and FM, and its CE marking that confirms its compliance with the essential requirements of the relevant European health, safety and environmental protection legislation, FIRETRACE has accreditations and approvals from more than 25 other world-renowned independent agencies. Personnel on the stand at Fire India also stressed that Firetrace International's FIRETRACE stands apart from its imitators and competitors by being able to be supplied with a variety of suppression agents, the choice of which is tailored to the precise fire risk.

Currently, the FIRETRACE suppression options include the latest environmentally acceptable clean agents such as 3M™ Novec™ 1230 Fire Suppression Fluid and DuPont™ FM-200®, together with ABC dry chemical agents and AFFF foam. CO₂ [carbon dioxide] is another FIRETRACE extinguishant, although the company cautioned visitors to its stand to be aware that extreme care has to be taken to ensure that CO₂ is not used in any applications where there is a risk of thermal shock to delicate electrical equipment.

While electrical control cabinets feature prominently in the list of FIRETRACE applications, today systems are also to be found protecting business-critical “micro-environments” in a wide spectrum of industries. These include: IT servers and telecommunications facilities; ventilation and air conditioning plant and



petrochemical control rooms; pharmaceutical laboratory fume hoods and dust extraction equipment; wind turbines and engine test cells; bus and coach engine compartments and throughout the mass transit sector.

Genuine FIRETRACE is available only via Firetrace International's global network of authorised distributors. These trading partners are skilled in hazard analysis, agent and system selection, installation, commissioning and support, and use only genuine FIRETRACE components.

Details of these authorised distributors are available by contacting Firetrace International at info@firetrace.com. The FIRETRACE EMEA head office is in the UK and can be contacted on +44 (0) 1293 780390, while the company's website is at www.firetrace.com

UL-listed and FM-approved FIRETRACE was chosen for the Delhi Metro and Delhi Airport's new Terminal 3.

New respirator service centre opens in Malaysia

AVON PROTECTION, part of Avon Rubber p.l.c., is expanding its operations by opening an essential service and repair centre for its respirators with a local Malaysian company.

The new centre will be fully approved and Avon certified, and is to be managed by SG Defence Electronics and Radar Corporation. It will be equipped to service and repair a range of Avon masks, including the C50, FM12 and S10, all of which are currently in service in Malaysia. Over time, this will be expanded to handle all of Avon's respiratory solutions.

Lieutenant Kol Ahmad Marzuki Ahmad Nawawi, Executive Director of SG Defence Electronics and Radar Corporation, says: “This new operation is a necessary addition to the Malaysian marketplace, and one that has already gained support with the Malaysian Army as well as with local organisations. The Army in particular require a rapid turn round in their support services, which is exactly what this centre will offer.”

David Hinds, Regional Sales Manager for Malaysia, adds: “This new service and repair centre is a major step forward in meeting our customer's requirements in a growing market. Alongside our local office, we at Avon Protection aim to make a real difference to clients and future clients in the region by offering this full through life service capability in their own backyard. We are confident that this centre will prove beneficial to all of those that use it.”

For further information about Avon's key respiratory equipment, please go to www.avon-protection.com

New training posters from Holmatro

'Holmatro's Emergency Shoring & Lifting Techniques'

HOLMATRO RESCUE EQUIPMENT introduces a new series of posters, explaining the basic principles of emergency shoring and lifting operations, as required for the safe rescue of persons trapped.

The posters series (5 posters) cover the disciplines:

- Vehicle on its side/on its roof
- Large vehicle stabilization & lifting
- Progressive lifting – Trench rescue approach
- Trench rescue: rapid safe area creation
- Collapsed structure rescue

With the help of clear full-colour illustrations all information is visible at a single glance. Therefore these posters are ideal for quick reference in a classroom or at a rescue station. The posters (size 50 x 70 cm and printed on high quality paper) are available in three languages: English, German and Dutch.

Available through your local Holmatro dealer (see: www.holmatro.com/rescue).

For more information please contact: Holmatro Rescue Equipment
Tel: +31 162 58 92 00 Email: rescue@holmatro.com



Indestructo™ Decon Shower

ANSI/ISEA 113-2008

Certified Decontamination

THE AMERICAN NATIONAL STANDARD for Fixed and Portable Decontamination Shower Units (ANSI/ISEA 113-2008) provides manufacturers and users with performance requirements and testing procedures for decontamination showers. Showers that meet the ANSI/ISEA 113-2008 standard demonstrate that they meet the needs of emergency first responders and health care facilities.



The Indestructo™ Decon Shower meets the flow rates, spray pattern, and other performance characteristics set by the ANSI/ISEA 113-2208 standard. The five showerheads have a total output of 15 gpm for full, complete water coverage. The spray pattern from the shower heads creates a virtual wall of water, ensuring complete decontamination. The Indestructo™ has multiple ways to secure to the ground for use in high wind situations.

Constructed of ABS thermoplastic, the Indestructo™ is highly resilient, and designed to hold up to the most rugged emergency response conditions. The Indestructo™ assembles rapidly using quick-connecting locks, and has a fully collapsible design to allow for convenient storage in an easy-to-carry vinyl bag. Two attached windscreens reduce overspray. The shower can be set up in under 3 minutes to ensure a fast response time.

DQE, Inc. provides practical products and expert support that improves the safety and readiness of the response and healthcare community. Headquartered in Indianapolis, Indiana, USA, DQE proudly celebrates 19 years of service. For additional information and to learn more about DQE and its family of products, visit www.dqeready.com.

Specialised products from Saint-Sea Group

SAINT-SEA GROUP is an international group company with its headquarters in Hangzhou, China and branches/offices in Denmark, Spain, America and Latin America. It is specialized in the production and exportation of fire fighting products such as extinguishers (with EN-3 and CE), components (cylinder, valve, pressure gauge, powder etc.) as well as water system products (hose reel & cabinet, branch-pipes, water valve, couplings, fire hose etc.) Sprinklers, smoke alarms and fixed suppression systems (CO₂, HFC-227ea etc.) are also within our range of supply. Besides providing the products with European/American standards, we are very strong at making OEM products as well as developing new products for customers.

Please contact us at saintsea@emaildisk.com for more information

Recon Scout® Rescue

Will Provide Immediate Reconnaissance of Confined and Dangerous Environments

RECONROBOTICS, INC. have announced the introduction of the Recon Scout® Rescue, a miniature reconnaissance device that will allow search-and-rescue personnel to conduct immediate visual reconnaissance of confined spaces and dangerous indoor and outdoor environments. In the fire/rescue sector the device is unique in that it is extremely small, throwable and mobile. Equipped with large motors, powerful drive trains and aggressive wheels, the one-pound Recon Scout Rescue can be directed by a firefighter to move through an environment and transmit real-time video back to the firefighter's handheld operator control unit as well as to the incident command post. This video can be used to locate victims, explosive devices or other hazardous materials.

The Recon Scout Rescue is a variant of the company's highly successful micro-devices that it builds for the U.S. military and various federal agencies. The Rescue is just eight inches long and weighs just 1.3 lbs., making it extremely easy to carry and throw. Moreover, deploying the Rescue takes just 10 seconds, and using it requires no special training. A firefighter simply pulls the activation pin and throws the device through a doorway or over a wall, or drops it down a vertical shaft using a tether. Using a single joystick on the operator control unit (OCU), the firefighter can then direct the device to move through the environment. Equipped with an infrared optical system that automatically turns on when the ambient light is low, the Rescue can see in complete darkness and can transmit video up to 100 feet indoors and 300 feet outdoors. When packaged with a ReconRobotics Command Monitoring Station, the Recon Scout Rescue can also transmit video to an incident command post that is located up to 1,000 feet away.

Fire/rescue agencies can also specify the Rescue in any of three transmitting frequencies, allowing their front line personnel to operate up to three devices in the same environment at the same time.

According to CEO, Alan Bignall, the Rescue is designed to protect the lives of front line personnel during hazardous operations. "When fire/rescue personnel arrive on the scene of a disaster or major search and rescue operation, there is an urgent need for quick reconnaissance of the situation," says Bignall. "The Recon Scout can be thrown into the environment by front line personnel, and in a matter of seconds it will give the incident commander a clear picture of what he or she



is up against. A small mobile device like this is the best way to let the firefighters know what lies ahead."

In addition to its small size and mobility, the new Rescue has several performance characteristics that make it ideally suited to search and confined-space operations:

Visible: Its bright yellow finish makes it easy to see even in cluttered environments

Easy To Deploy: Simply pull the pin and throw the robot into the environment. A single thumb-controlled joystick on the OCU controls the movement of the device.

Perceptive: The Rescue's infrared optical systems automatically turn on when the ambient light is low enabling the device to "see" in complete darkness.

Durable: Constructed with a titanium shell and toughened electronics, the Rescue can survive repeated horizontal throws of 120 feet and vertical drops of 30 feet.

For additional information about ReconRobotics and the Recon Scout Rescue, please visit

www.recon-scout.com/rescue or phone Katie Sisco at 1-866-697-6267

Pelican Offers A New Twist On Headlamps With The HeadsUp Lite™ 2690

Bright, abundant, hands-free light will always be just a twist away with the introduction of the Pelican Products HeadsUP Lite™ 2690.

The 2690 is a tough, weather-resistant, headlamp with a twist-actuated switch, designed for easy gloved-hand operation.

Weighing in at a mere 4.1 ounces with batteries, the headlamp features a super-bright, next-generation LED that radiates 60 lumens at peak brightness and gives usable light for up to 10 hours. Ideal for map reading, lighting a dark trail the 2690 offers a 90 degree pivoting lens so the user can focus the light where they need it most.

The HeadsUP Lite 2690 comes complete with both a rubber headband for hard hat use, a comfortable cloth headband and three AAA batteries.

Pelican™ Products, Inc. is the global leader in the design and manufacture of advanced lighting systems and virtually indestructible



cases. After acquiring Hardigg Industries in December 2008, the company now operates in 12 countries, with 22 offices and six manufacturing facilities across the globe.

For more information, visit www.Pelican.com, www.hardigg.com or www.behrmanacp.com
MEDIA CONTACT:
Irina Obrzhutovich
Pelican Products
Email: irina.obrzhutovich@pelican.com
Tel: +1 413.665.2163

Bristol's business in Australia takes off with PAC Fire

Less than 12 months after appointing PAC Fire as their principal distributor in Australia, Bristol and Pac Fire have successfully tendered for the supply of "front line fire PPE" in a contract to provide 1400 sets of Structural protective clothing to Airservices Australia.

Servicing 21 of Australia's busiest airports, through the organisation's Aviation Rescue & Fire Fighting (ARFF) operation, Airservices is the country's leading supplier of firefighting services to the country's aviation sector employing 650 firefighters at airports from Darwin in the north to Hobart in Tasmania and Perth in the West to Brisbane in the East. ARFF responds to around 6,500 incidents annually.

Airservices started looking to improve the quality and performance of its structural PPE in 2008 and put out a general tender in early 2009. Pac Fire, working closely with Bristol, submitted a tender based on Bristol's lightweight ErgoTech Action™ design incorporating a PBI Gold™ outer-

In addition to the supply of the PPE, a fully certified maintenance service will also be provided. Pac Fire has contracted a partner company, fully certified by Bristol, to carry out repairs and decontamination. All ARFF structural garments are fitted with an RFID computer chip that allows ARFF, Pac Fire and the contractor to monitor and condition code every garment throughout its service life.

Keith Ward, Pac Fire's managing director said "ARFF is now one of the best PPE equipped fire brigades in Australia and should be congratulated on its efforts to improve the level of personal protection for its aviation firefighters deployed across the country. ARFF now have a leading edge technical garment that will serve them well for many years".

Keith Ward, Pac Fire's managing director said "ARFF is now one of the best PPE equipped fire brigades in Australia and should be congratulated on its efforts to improve the level of personal protection for its aviation firefighters deployed across the country"

layer with Goretex Airlock™ thermal and moisture barrier. A number of changes were introduced to the garment's features to make them ideal for Australian conditions which enabled Bristol and Pac Fire to secure the contract. The initial 1400 sets of fire coats and trousers included in the contract were chosen on a combination of factors including the overall performance of the Bristol garments, their certification to Australian standard AS4967 and the high Total Heat Loss readings all of which met the high specification set by ARFF. The new garments will go into service in December 2009.

Roger Startin, Bristol's joint MD, who met Paul McBride, Airservices Representative, in Bristol recently to discuss the 5-7 year supply, stock support and service contract added, "This is an excellent result for us coming early in our partnership with Pac Fire and gives us great confidence in the potential for new business which exists for us in Australia. Pac Fire is a well respected company across Australia in the fire market and we are committed to harnessing the combined strength of our individual brands to establish a growing presence with our class leading and internationally recognised firefighter PPE."

APF

For more information about Bristol or Bristol Managed Services please contact either:

Roger Startin
Bristol Uniforms Ltd on
+44 (0) 117 956 3101 or
email roger.startin@
bristoluniforms.co.uk





*(formerly known as
Pacific Helmets Australia)*

Emergency Products for Critical Situations

MAJOR DISTRIBUTOR FOR

- Bristol Fire Clothing • Pacific Helmets NZ • ESKA Gloves
- Hot Stick USA • ESS Goggles • Kappler Chemical Suits
- Aqua Fast Pumps • Argus 4 Thermal Imaging Cameras
 - Eflare Beacons • Lifeline Flash Hoods
- Kestrel Weather Meters • Air Boss Defense Boots
 - UKE Torches and Accessories
- Quick Fist One Piece Clamps • Ventry PPV Fans
- Preco Environment Waste Spill Control Products

PHONE: +61 7 3441 7100

FAX: + 61 7 3441 7177

www.pacfire.com.au • sales@pacfire.com.au

HEAD OFFICE QLD

Unit 1, 28 Burnside Road
Hallmarc Business Park
YATALA QUEENSLAND 4207
AUSTRALIA

Oshkosh Strikers Sold to India's Busiest Airport – Chhatrapati Shivaji International Airport (CSIA)

OSHKOSH AIRPORT PRODUCTS GROUP, a division of Oshkosh Corporation (NYSE: OSK), today announced an order for two Oshkosh® Striker® 3000 aircraft rescue and fire fighting (ARFF) vehicles from Chhatrapati Shivaji International Airport (CSIA) in Mumbai, India. The identically equipped Strikers will be delivered in spring 2010. This is the first sale of Oshkosh Strikers into the Indian subcontinent.

"Oshkosh Airport Products Group is thrilled to play a role in the expansion and modernization of CSIA's equipment infrastructure with these two Striker ARFF vehicles," said Tim Raupp, Oshkosh Corporation Airport Products Group president. "These are the first Striker sales in the region, and we're especially pleased that these vehicles will be showcased at the busiest airport in India and one of the key business centers in Asia."

The Oshkosh Striker 3000 offers a 6x6 all-wheel-drive axle configuration and proprietary technologies such as TAK-4® independent suspension, Command Zone™ advanced electronics and rear axle steering for enhanced maneuverability. Other features include a 3,000-gallon (11,356 L) water capacity, 420-gallon (1590 L) foam capacity and a structural firefighting system.

The Oshkosh Striker is among the most



The order from Chhatrapati Shivaji International Airport in Mumbai represents the first sale of Oshkosh® Striker® vehicles on the Indian subcontinent

popular ARFF vehicles in the world. Its capabilities have garnered the vehicle overwhelming respect among a growing list of international customers, including Anchorage International, Dubai International, Montreal Pierre Elliot Trudeau International, Incheon

International in South Korea, Denver International and Beijing Capital International.

**For more information, please contact
Oshkosh Airport Products Group
www.oshkoshairport.com**

Foam Symposium Continues with New Major Sponsors

Industry Leaders Revive Class A Training Program

THE 2010 INTERNATIONAL CLASS A FOAM AND CAFS ACADEMY in Glendale, Arizona will be sponsored by Elkhart Brass Mfg. Co., Inc., Waterous Worldwide, and Phos-Chek/ICL-PPLP.

The three-day academy, which begins February 18th, will be structured to include round-table discussions and hands-on training exercise along four training tracks:

- Basic – for those students new to foam
- Advanced – for students already using foam and with an understanding of the basic principles
- Administrators/Chiefs – for officers and administrators who need to know how to effectively implement and use foam in their departments
- Mechanics – for technicians who service, diagnose and repair systems

"It is our pleasure to join with Waterous and Phos-Chek in sponsoring the 2010 Class A Foam and CAFS Academy," notes Don Sjolín, Vice-President of Marketing and Strategic Development. "Elkhart has always strongly supported knowledge and training as key to firefighter safety. A training class which combines modern firefighting techniques utilizing foam technology with informational teachings by both manufacturers and users is exactly the kind of event we are honored to promote."

The full program guide and registration can be found at the various company websites: www.elkhartbrass.com, www.waterousco.com, and www.phoschek.com. Registration deadline is January 31, 2010.

Euramco Safety Receives ATEX Certification for Its RAMFAN Hazardous Location Turbo Blower Line

WAYNE ALLEN, PRESIDENT OF EURAMCO SAFETY, announced the ATEX Certification and said the company was pleased their RAMFAN line of Hazardous Location Blowers will bear the EX mark issued by UL, attesting to its compliance with International Hazardous Location Safety Standards.

In addition, Allen stated the whole-unit ATEX Certification is a first for the US Fire Rescue Industry. The RAMFAN Hazardous Location line includes Electric, Air, Water driven Blowers and Exhausters plus Ducting and Accessories.

Euramco Safety is an ISO 9000 Manufacturing Company with manufacturing facilities in Spring Valley, CA. and sales locations throughout the world.

**For more information contact Euramco Safety
Toll Free at +1 619 670-9590 or visit
www.euramcosafety.com.**

A chain saw that cuts concrete!

And all the reinforcing metal in it!



CUTTERS EDGE has been manufacturing Fire Rescue Saws since 1984. We manufacture our saws for Fire Rescue Cutting only and unlike competitors our saws are not just construction, demolition or logging saws with fire rescue labels put on them. CUTTERS EDGE FIRE RESCUE SAWS are engineered and built to work specifically in the conditions Rescue Professionals must work in and to cut any and all materials encountered at Fire and Rescue Incidents.

CUTTERS EDGE dedicates itself to manufacturing saws and cutting implements only. We manufacture 3 Saw models, 2 grades of Diamond Discs, and 2 types of Cutting Chain i.e. Carbide-Tipped BULLET® Chain and GCP SealPro® Diamond Chain. All our research and development and all our energies are devoted to fire rescue cutting only. We do this one thing, we do it very well, and we do it better than anyone else!

The CE101C Gasoline-Powered Concrete Chain Saw with GCP Premium SealPro® Diamond Chain cuts 16 inch (41cm) thick concrete and unlike expensive hydraulic saws, no power pack or hydraulic lines are needed . . . just a single water line to lubricate the diamond chain and

prevent any concrete dust. Only 2 gpm (7.5 liters/min) of water at 20 psi (1.5 bar) is needed and it can be supplied from any source; a garden hose from municipal/residential systems, hydrant, pumper, tender, lake, ocean, river, even a container of water. The CE101C can also be purchased as a complete 24-piece **Concrete Sawing Kit**. The aluminum storage case can be used as a water reservoir, and the kit includes a pump and all accessories needed to supply water to the saw.

The CE101C cuts a large range of materials, including reinforced concrete, brick, concrete block, abrasive concrete, stone . . . any natural rock or manmade cement product. **APF**

For more information or a demonstration of the Concrete Cutting Chainsaw, please contact:
Cutters Edge
Tel: +1 (541) 524-9999
Email: info@cuttersedge.com
Visit: www.cuttersedge.com

The CE101C has a 6.2 cu. inch (101cc) engine engineered specifically for cutting concrete with the following features:

- Advanced Crankshaft Sealing
- Sealed Throttle Shaft
- Waterproof Ignition
- Momentary Contact On/Off Switch
- Rubber Coated Base
- Multi-Stage Oil Barrier Air Filtration

- Pivoting WallWalker (developing a 4:1 mechanical advantage that reduces cutting effort)
- Full-Wrap Handle
- Water Pressure Gauge
- 3 Axis, 360° Degree Swivel Hose Connector
- Stainless Steel Muffler Exhaust Port Cover (seals the exhaust port from water)
- Starter Spring Lubrication Port
- Complete Tool Kit and Maintenance Supplies

CFA: one of the wo volunteer-based e



CFA is an intrinsic part of communities across Victoria. CFA's members, particularly its large volunteer base of almost 60,000 are neighbours, friends and acquaintances of the people they serve.

CFA is continuing to build on our close relationships with other emergency service providers, while extending and strengthening CFA engagement in the broader government, local government and business sector, as we prepare for the coming bushfire season.

Objectives, functions, powers and duties

Under the *Country Fire Authority Act 1958* ('the CFA Act'), CFA is vested with the duty of "taking superintending and enforcing all necessary steps for the prevention and suppression of fires and for the protection of life and property in case of fire . . . so far as relates to the country area of Victoria".

This includes wildfires and structure fires, as well as incidents involving hazardous materials, road rescue, and rescue in areas of diverse risk, including high-risk industries such as petrochemical and gas.

Nature and range of services provided

CFA has evolved from its informal beginnings in community based fire brigades to become one of

the world's largest volunteer-based emergency service organisations. It is wholly committed to the prevention, preparedness, response and recovery phases of emergency situations, providing a diverse range of risk reduction, fire suppression and incident management services to minimise the impact of fires and other emergencies on Victorian communities.

CFA's operations rely on the skills of an integrated force of volunteer and career members who are dispersed throughout Victoria and united through a commitment to create safer communities and protect life and property and the environment.

Volunteers have forged very strong strategic relationships within local communities and provide not only fire suppression expertise but also assistance with fire prevention and mitigation, through educational programs and close working partnerships with local municipalities and industries.

Volunteers in many areas contribute to the social cohesion of their local communities. CFA's services are based on the internationally adopted 'comprehensive approach' to emergency services (prevention, preparedness, response and recovery) used to classify the key functions in managing emergency

Contact details:
County Fire Authority (CFA)
PO Box 701
Mt. Waverley
Vic. 3149
Australia
Tel: +6139262 8444
Fax: +6139264 6200
Website: www.cfa.vic.gov.au

World's largest emergency services



events, as described by the Productivity Commission's Annual Report on Government Services.

CFA provides state-wide fire and related emergency coordination including:

- community awareness, education and safety programs
- wildfire suppression
- structural fire suppression
- transport-related fire suppression
- road rescue
- technical rescue, such as high angle, trench and mine operations
- hazardous materials transportation and storage incidents
- forestry industry brigades
- industrial accident response
- other emergency activities including flood assistance
- technical services including building code-related
- inspections and post incident investigations
- fire safety input planning for major community risks
- fire prevention
- land use planning advice at municipal level.

CFA Dimensions

Victoria's natural environment is among the most bushfire prone in the world and CFA is responsible for an area that is home to more than half the State's population.

A large part of outer metropolitan Melbourne, as well as provincial towns and rural communities, comes under the protective umbrella of CFA. This protection encompasses some of Victoria's critical

infrastructure, including the power industry of the Latrobe Valley, gas production facilities at Longford in Gippsland, oil refinery facilities in Geelong, as well as major tourism areas, alpine resorts, extensive plantations, marine environs and growing mining industries.

As our communities extend further into rural interface areas, more Victorians will rely upon the services that CFA provides. In meeting its objectives, functions, powers and duties as expected by Government and the community, CFA:

- serves a population of approximately 2.6 million people and protects more than one million dwellings
- volunteers contribute an estimated \$840 million annually to the Victorian economy
- manages a workforce of a size comparable to Australia's largest organisations
- is one of the largest providers of tertiary-level training in rural Australia
- is recognised for delivering one of Australia's largest and most successful community awareness education and safety programs
- operates one of Australia's largest transport fleets, with almost 2,300 trucks
- operates one of the largest public safety communications networks in Australia
- serves some of the State's most significant commercial centres, industries, critical infrastructure, recreational and tourist attractions
- services Victoria's growth corridors, which are among the fastest developing regions in Australia
- collaborates with other Emergency Service Organisations in the operation of the State's integrated emergency coordination centre. **APF**

Fire is a real threat for data centre operators



Finding the right fire protection systems to protect mission-critical equipment in a data centre environment is a big challenge for any IT professional.

As modern server units employ complex technologies that have high power consumption and generate significant amounts of heat, the risk of a fire is a real threat to data centre operators such as Global Switch.

Global Switch operates seven strategically located international data centres across the world. In Asia Pacific, it services clients from strategically located facilities in Singapore (22,000 square metres) and Sydney (41,500 square metres). These facilities house servers and other data equipment for a large number of multinational clients who are based both locally and internationally.

For Global Switch, selecting the best fire protection services partner is critical to protecting its assets. The type of fire protection solutions available at its facility is also a principal consideration for clients who count on Global Switch to safeguard their valuable electronic data and to keep their business operating efficiently.

Recognising the need for a fire protection solution that can effectively monitor, trace and extinguish fire before it poses a danger to people and property, Global Switch appointed Wormald to design and install a comprehensive solution that comprises a sophisticated fire alarm/detection, fire protection and fire suppression system in both data centres in Singapore and Sydney. One of the primary reasons for selecting Wormald, was its deep level of global technical expertise in meeting the needs of the IT industry and specific knowledge of the intricate nature of 24x7 IT data centre operations.

Tailored solutions

As the Global Switch facilities in Singapore and Sydney are both spread over seven storeys, each level is assigned a specific purpose and further divided into suites according to client needs. Due to this unique set up, the fire protection requirements for each level vary widely. Understanding that the IT needs of Global Switch's clients change regularly, Wormald developed customised solutions that were completely scalable, offering minimised disruption and maximised business continuity.

Roger Thomas, Director of Engineering, Tyco Fire Protection Services Asia Pacific, said: "The IT industry offers unique challenges to fire protection service providers. When we were designing a solution for Global Switch, not only did we have to take into account of the water-sensitive nature of the IT equipment that we had to protect, we also had to consider the future business expansion needs of the data centre."

In 2002, the Tyco Minerva® Analogue System with one main alarm panel and nine sub-alarm panels, together with 2,430 detectors and devices, were installed throughout the building. In order to continuously watch for the first signs of fire, the VESDA® (very early smoke detection and alarm system) fire detection system was also incorporated to pinpoint the location of heat and smoke in every suite. Due to the presence of high-value electrical and electronic IT infrastructure, special consideration was placed to shield sensitive parts of equipment against accidental water ingress.

Contact us:
Australia
Phone + 61 2 9638 8500
Email
firesafety.au@tycoint.com
Website
www.wormald.com.au
Singapore
Phone +65 6389 8899
Email
enquiries.sg@tycoint.com
Website www.wormald.sg

at to data

Singapore

Fire Alarm/Detection System

- MX Minerva® Analogue System
- VESDA® early warning fire detection system

Fire Suppression System

- 150 Bar Inergen®
- 300 Bar Inergen®

Fire Protection System

- Wet Sprinkler System
- Pre-Action Sprinkler System
- Dry Riser System
- Hosereel System

Sydney

Fire Alarm/Detection System

- Addressable System
- VESDA®

Fire Suppression System

- 200 Bar Inergen® System
- Double Interlock Pre-Action System

Initially, the Inergen® fire suppression system was configured to protect assets located in suites concentrated on one level. Over the next five years as business needs grew, the central bank Inergen system was progressively extended and reconfigured, using selector valves, to protect every suite on every level.

The primary protection for the Global Switch building in Singapore uses a Wet Sprinkler System for the offices and corridors, lift lobbies and stairways to ensure compliance with local Code of Practise (CP), while for all the data centres and battery rooms, Pre-Action Sprinkler Systems have been installed to limit accidental water damage. As added protection, Hosereel Systems, Dry Risers and Breeching Inlets were also installed.

In addition, fire security systems such as door access, CCTV and a public address system were also installed. With the multi-layered fire protection solution in place, any outbreak of fire can be dealt with swiftly and safely contained, if not suppressed.

Global Switch's data centre in Sydney was built around a large open office floor space to offer flexibility to meet the future data centre expansion plans. To support Global Switch, Wormald devised a smart cost-effective solution that would not only meet the initial fundamental requirements of data centre fire protection in the short term, but also add on more sophisticated fire protection solutions as required.

Wormald began the project by outfitting all seven levels of the Sydney data centre with sprinkler systems for the office areas, a water mist system for the facilities back up generators and pre-action sprinklers for all open areas. The all-round building fire protection was supplemented with 200 Bar Inergen® Gaseous Suppression Systems that were integrated throughout the critical sections.

With the basic fire protection structure in place, Wormald's engineers were able to add on individual Inergen Systems to each Data Suite and expand the pre-action systems to the underfloor, as and when the various suites within the data centre were tenanted.

To date, six levels of the Sydney data centre are protected by 34 gas zones and a variety of fire and

gas detection monitors. With a high degree of flexibility built into its solution, Wormald will be able to expand and upgrade the fire protection network within a short turnaround time.

Looking ahead, keeping up with changing demands

Due to the flexibility contained within the original Fire Systems Design Strategy at the Sydney location, there will be no immediate need to update any of the existing systems. The current system will have sufficient flexibility to continue to meet the needs of all new and existing clients.

In Singapore, Wormald will continue to work closely with Global Switch as building extensions take place and demand increases for their services. The upgrading and centralisation of fire alarm systems and extensions to the Pre-Action and Wet Sprinkler System will take place to ensure that all Data Centre Suites are protected, as new tenants come on board.

Benefits

In recognising technical and cost constraints prevent many businesses from creating the optimum environment for IT systems, Global Switch provides cost-effective solutions by taking care of its clients' needs for business continuity and risk management. Global Switch is a clear example of how continued investments in critical fire protection have allowed the business to use its state-of-the-art fire detection and suppression as a key selling point to potential clients.

Thomas said: "Wormald is extremely proud to have delivered a compelling fire protection solution that not only meets the risk management challenges for both IT data centres, but exceeds the requirements of the local fire regulations. Through Global Switch, Wormald has proved its capability to work with clients across borders and this is a clear demonstration of our ability to tap on our unmatched worldwide experience and best practices for our clients, regardless of geography."

APF





ANGUS FIRE

All Firefighters deserve the best

No compromise on safety –
Specify Angus Fire

- Angus **Duraline** Hose
- Angus **Hi-Vol** Hose
- Angus Fire Fighting Foams – Synthetic & Protein-based
- Angus Portable Fire Pumps
- Angus **Hi-Combat** foam-making Uniductors & Branchpipes



UTC Fire & Security
A United Technologies Company

Angus Fire, Thame Park Road, Thame, Oxfordshire OX9 3RT UK

Tel: +44 (0) 1844 265000 Fax: +44 (0) 1844 265156 E-mail: general.enquiries@kiddeuk.co.uk www.angusfire.co.uk



Mapping Bushfire Potential

By Konrad Marshall

Bushfire CRC

Creating a realistic computer representation of a bushfire moving across the landscape is the goal of a project being implemented this fire season in the south-eastern Australian state of Victoria – the location of a devastating wave of bushfires in early 2009 known as “Black Saturday”.

The Bushfire Cooperative Research Centre software – known as Phoenix RapidFire – is being trialed in Victoria as the state prepares for what is expected to be a dry, hot summer, however the longer term view is to help agencies all across Australia prioritise how they deploy resources to suppress bushfires.

The Black Saturday fires in Victoria (February 7th 2009) made international headlines last February when hundreds of fires lit up the state, destroying homes, infrastructure and livestock, and claiming 173 lives in the process. It is hoped that Phoenix RapidFire, a software-based bushfire characterisation model designed by Bushfire CRC Researcher and Project Leader Dr Kevin Tolhurst of the University of Melbourne, will help quantify how management decisions by fire agencies can change the nature of fire in the landscape, either in size, intensity or number, if faced with such circumstances again.

The project has been developed over a number of years, but this year with additional funding from Victoria's Department of Sustainability and Environment (DSE), Phoenix RapidFire will run on a bank or “cluster” of 10 computers that will be fed

weather forecast information every day at 6 am. Dr Tolhurst explained that the forecast data is produced by the Bureau of Meteorology on a 3 km grid (which was partially enhanced by the Bushfire CRC's research) and will be linked to and accessed by Phoenix RapidFire, which will quickly identify areas in the state that might be a priority for fire agencies.

“We would produce a coloured map of the state which identifies the areas that would potentially have the greatest losses,” Dr Tolhurst said. “Not just in terms of fire behavior, but potential impact.”

The DSE has also set up its system so that the location and ignition time of new fires will automatically be sent to Phoenix RapidFire, which will run each fire for a six-hour period to see what the potential spread of the fire might be and what is in its potential path. Dr Tolhurst said the tendency in fire suppression now is that an agency already working on a specific fire often determines the best course of action is to keep fighting if the fruit of their labour is encouraging, when it may actually be worth traveling 90 minutes to fight a different fire that has the potential to cause more



damage (this has been a key finding of another Bushfire CRC project examining decision making by firefighters).

"That's not so important if you only have one fire," said Dr Tolhurst (pictured above left, at laptop). "But if you have 50 fires start up in the afternoon, it helps identify which ones are of greatest priority – so not necessarily which one will be the biggest, but which one might have the greatest impact – and that will help in the allocation of resources. Often what happens in that situation is you allo-

cate resources as fires appear, and by the time number 45, 46 and 47 appear, you haven't got any resources left, or very few, and it could be those fires that actually end up doing the greatest damage."

Dr Tolhurst, who has been involved in fire prediction work since 1988, said Phoenix RapidFire is a dynamic model that takes into account all the major factors involved in bushfire, and that the work breaks new ground by taking into account the limitations of different suppression techniques (from aircraft to ground crews and bulldozers), while factoring in other variables such as terrain and fire intensity.

"All of that we can build into the model," he said. "That makes a big difference. One of the things we're trying to quantify is, 'What difference does it make if you actually try and suppress these fires? If you weren't there at all would it make any difference?' You spend millions of dollars trying to suppress a fire and you can be unsuccessful in stopping it, so what difference does suppression really make?"

The project also simulates spot fires created by the spotting behavior of fires, which are crucial within the Australian situation.

"One of the things we saw on Black Saturday was how the spotting process interacts with the nature of the topography – where you get multiple ignitions in areas in front of the fire and you basically get a firestorm when all those fires join up," Dr Tolhurst said. "The intensity of the fire within that zone is much more intense than a fire just running across the landscape. That's where we saw trees pulled out of the ground and we saw the biggest loss of life. Our model incorporates aspects of this spot fire behaviour."

The work has received some attention internationally. Earlier this year, Dr Tolhurst was invited to Canada to make a presentation at a spot fire modeling conference. His colleague, Developer Derek Chong, went to Toronto in his place, where he found researchers more than receptive to the spot fire component of the Phoenix RapidFire model.



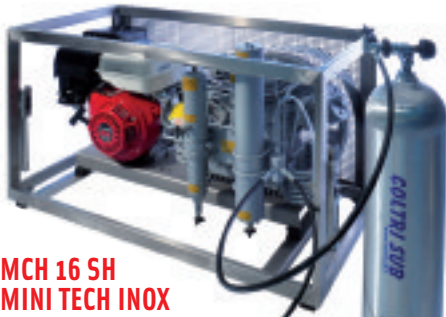
COLTRITM COMPRESSORS

PURE BREATHING COMPRESSED AIR DEPENDABLE TECHNOLOGY



MCH 30 SILENT WITH DRIER

500 Lt/min - 18 CFM, Fully automated, Stationary filling station, The refrigerated air drier extends filtration media lifespan 6 times



MCH 16 SH MINI TECH INOX

265 Lt/min - 9.5 CFM, Light weight, Highly reliable, Portable station, Marine grade, Stainless steel frame, Also available with diesel and electric drive



MCH 6 SH

Ultraportable 100 Lt/min - 3.5 CFM, Small compressor only 37 Kg, Also available with single and triphase 3 Kw electric drive

Coltri Asia Pacific Co., Ltd.

Free Zone at 304 Industrial Park 2 No. 94/5, Moo. 3, T. Khao Hin Sorn - A. Phanomsarakarm, Chachoengsao 24120 Thailand

Tel: + 66 38 855 103 to 5 Fax: + 66 38 855 106
mobile +66 81 8913937

c.benelli@aerotecnicacoltriasiapacific.com
www.aerotecnicacoltriasiapacific.com



1 Ton
of AFFF
=
10 kg
of fluorosurfactants (PFC)
=
2 Million M3
of contaminated water



FLUORINE FREE Foam
The alternative

www.bio-ex.com



"They're noticing how important spotting is for us, and they're actually starting to think they ought to include a spotting component in *their* models," Dr Tolhurst said. "They've seen spotting primarily as a breaching mechanism – Is the fire going to get across this river or that road? – so we're well ahead of what's happening elsewhere in that area because it's much more important for us."

The project, naturally, has also received a great deal of attention locally. On this mid-November day, Dr Tolhurst spoke to *Asia Pacific Fire* magazine while taking a break from an engineering symposium on bushfire issues, at which he was presenting. It was a scorching afternoon – though not yet officially summer – and Tolhurst was high above Melbourne on the air-conditioned top floor of a Melbourne University building overlooking the city, but his work frequently takes him beyond the confines of the office.

Two days earlier, he was at the little town of Kinglake – a scene of shocking devastation from the 2009 fires, where more than 500 homes were razed and 42 people were killed. Tolhurst spent the afternoon speaking to the people who got burned out up there, at their temporary village.

The day prior, he was visiting bushfire country in Victoria's Otway Ranges. Before that, he was doing the same in the state's Dandenong Ranges.

"Since the Black Saturday fires, it's just been unbelievable in terms of the media and public interest," Tolhurst said. "It's not all about Phoenix,

but the work is attracting attention."

Dr Tolhurst is a Project Leader within the Bushfire CRC, whose mission is to enhance the management of the bushfire risk to the community in an economically and ecologically sustainable manner, and as such his work goes beyond one computer program and into a whole area of risk management, examining how resources are used by fire agencies whether for prevention, response or recovery. Phoenix RapidFire is one part of that – attempting to quantify those management decisions.

The starting point for the software was being able to reproduce historic fires with a high level of fidelity – to make the characterizations of those fires as realistic as possible. Phoenix RapidFire now runs thousands of fires.

"What it has highlighted now is the need for a lot better input data," Dr Tolhurst said. "The thing we're struggling with now is actually mapping fuels around the rural/urban interface. Classically, it has been mapped as an urban area. But from a fire point of view, we want to know how deep a fire is likely to penetrate into that area – how intense might a fire be in there? So we have a need to go back and visit the way we've mapped some of our vegetation from a fuel point of view, so that we can compare one locality with another in terms of its level of bushfire risk. The model has, in a sense, identified a need for better data. It's now more worthwhile spending resources to

build up those layers, because you can use them. You get an immediate payback."

Then next part of the plan, said Dr Tolhurst, is to rewrite the software as a web-based application, "so there's one version of the software that's maintainable," he said, "not something sent out in boxes with an individual ID."

With Australians murmuring and fretting over the forecast for this fire season, anxiously waiting to see what happens during the predicted protracted summer, it is worth noting that Dr Tolhurst is conflicted but excited by the nearing opportunity to see Phoenix RapidFire in action.

"I think it's very exciting in many respects, but it's also quite scary, because I know there are all sorts of things to consider," he said. "When you look at historic fire reports, the location where fires started and the time they started is often way out, so you know you're often going to be modeling on bad starting data, so there are these potential glitches. What's going to be really important as part of this process is making sure there are people who understand fire behavior."

With that in mind, 90 people have been put through a Fire Behaviour Analyst Program all over the country to meet the need. Prior to these efforts, Australia has had to partially rely on Canadian fire behavior analysts coming down under.

"We haven't had the capacity, in the past, to do this here," Dr Tolhurst said. "But we've had the training, and now people have got to get the experience to go with it, and the model is working quite well. We're on the right path."

APF

TASK FORCE TIPS, INC.



3701 Innovation Way, Valparaiso, IN 46383-9327 USA
International +1.219.548.4000 • www.tft.com • intsales@tft.com



TASK FORCE TIPS FIRE FIGHTING EQUIPMENT

*Where New Ideas Flow!
Your First Choice
In Tactical Water Delivery Solutions!*



AUSTRALIA
Gaam Emergency Products-AU
Phone : 61394661244
Fax : 61394664743
iprice@tycoint.com
www.gaam.com.au



CHINA
Shanghai Jin De Industry
Phone: 862136050599
Fax: 862136055599
sjinde@163.com
www.sjinde.com



HONG KONG
Rotter International Ltd.
Phone: 85227517770
Fax: 85227562051
jacky@rotter.com.hk
www.rotterbiz.com



INDIA
Foremost Technico Pvt Ltd
Phone: +91 (11) 2619 6982
Fax: +91 (11) 2616 6961
foremost@halfway.com
www.foremost-india.com



INDONESIA
Pt Palmas Entraco
Phone: 6221384 1681
Fax: 6221380 2660
sales@palmas.co.id



JAPAN / TAIWAN
Yone Corporation
Phone: 81758211185
Fax: 81758012263
Lyone@myad.jp
www.yone-co.co.jp



MALAYSIA
Sentrrix Technology Sdn Bhd
Phone: +603 8023-5226
Fax: +603 8023-5618
chong@sentrrix.com.my
www.sentrrix.com.my



NEW ZEALAND
Tyco Safety Products
Phone: 6445608127
Fax: 6498270844
tsp.sales.nz@tycoint.com
www.tycoeservices.co.nz



PHILIPPINES
Alliance Industrial Sales
Phone: 6328908818
Fax: 6328960083
alliance8_jcy@pacific.net.ph



SINGAPORE
S.K. Fire Pte. Ltd.
Phone: 6568623155
Fax: 6568620273
houchin@skfire.com
www.skfire.com



SOUTH KOREA
Shilla Fire Co., Ltd.
Phone: 820236559011
Fax: 820236839113
kofire77@hotmail.com
www.firekorea.com



THAILAND
Anti-fire Co., Ltd.
Phone: 66 2 259-6896
Fax: 66 2 258-2422
sithichai@antifire.com
www.antifire.com

www.tft.com

ONLY FIRETRACE IS FIRETRACE

OTHER TUBE-BASED SYSTEMS
CLAIM TO BE LIKE FIRETRACE.
THEY ARE NOT.



INSIST ON GENUINE
FIRETRACE SYSTEMS
FOR PROVEN FIRE
SUPPRESSION.

+ Only FIRETRACE INTERNATIONAL Systems offer the extensively tested Firetrace brand solutions with listings and approvals from CE, FM, UL, ULC and more than 25 other international agencies on agents such as Dupont FM-200, 3M Novec 1230, CO₂ and ABC dry chemical.[†]

+ Only FIRETRACE INTERNATIONAL has 20 years of experience with more than 65,000 systems protecting equipment worldwide

+ Only Genuine FIRETRACE SYSTEMS have the tested and proven reliability you and your customers require

Never compromise your reputation by using impostor, untested and unapproved systems – be sure you are using genuine Firetrace.

FIRETRACE®
AUTOMATIC FIRE SUPPRESSION SYSTEMS

Call +44 (0) 1293 780390 (Europe, Middle East, Africa)
or +1 480 607 1218 (US and elsewhere) or e-mail info@firetrace.com
to see why Firetrace is the right solution for your fire protection needs.

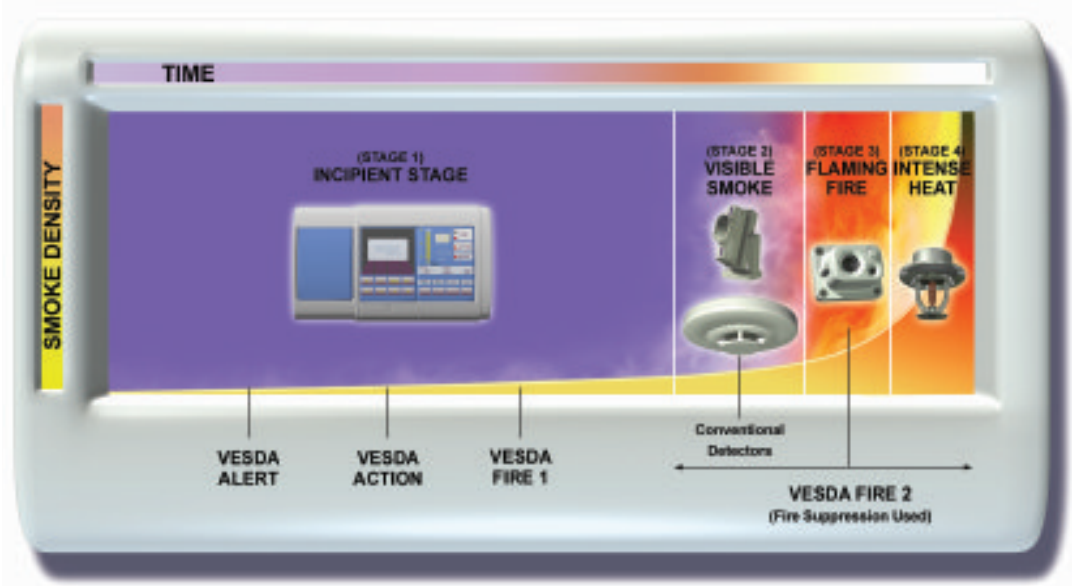
www.firetrace.com
www.firetrace.eu



Firetrace® is a registered trademark of Firetrace USA, LLC / Firetrace Ltd. All unauthorized uses of the Firetrace trademark shall be prosecuted to the fullest extent permitted by the law.

[†] Listings and Approvals vary by system and agent.

Figure 1 Smoke Density over Time



Industrial Strength Fire and Smoke Protection

Providing very early warning smoke detection for mission critical industrial facilities and equipment

By Mariann McDonagh

SVP Marketing, Xtralis

Mission-critical facilities and equipment

Mission-critical facilities are those that are critical to a facility's operation. Such equipment provides a "guarantee" that it will continue to operate, regardless of external conditions. A cabinet containing process control equipment providing services to a steel refinery is one example. A minor interruption in services from the cabinet could seriously impact the operational continuity resulting in economic loss. This article discusses smoke detection systems and their role in prevention of fire and smoke contamination within a mission-critical facility and industrial equipment.

Very early warning

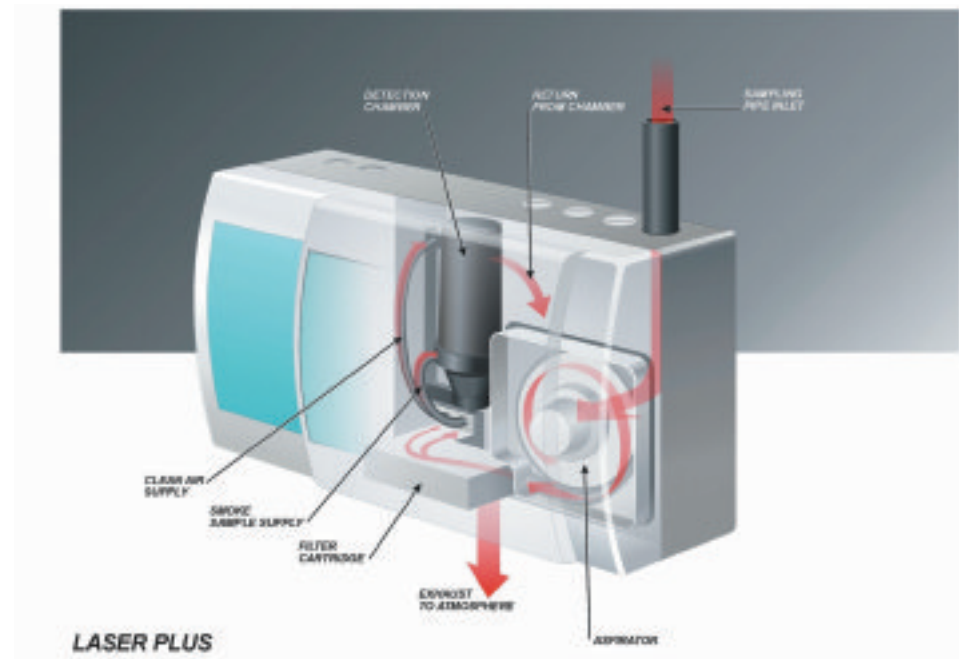
Within the fire industry, detectors are categorized as Early Warning Smoke Detection (EWSD) and Very Early Warning Smoke Detection (VEWSD). In fact some people use these terms very loosely and do not differentiate the two correctly. An EWSD system provides detection of a fire condition prior to the time that it becomes threatening to the occupants of a building or equipment within it. Generally this is the time that smoke is visible. Let's use the example of a low voltage switch cabinet with a fault within the electronics resulting in a thermal event; it may smolder for hours before a

flame ignites. We refer to the smoldering stage as the incipient stage of a fire. During this incipient stage the human eye will not see the particles but the human nose may smell them. EWSD are not sensitive enough to detect smoke at the incipient stage of an electrical-type fire. Only a VEWSD will detect an incipient fire and thus the term "VERY EARLY WARNING". This stage of a fire could last for hours or even days and it could cause significant damage.

Smoke contamination

So why is the detection of smoke at the earliest possible stage important? Because the biggest risk to the continuous operation within an industrial facility is the smoke damage to electrical equipment, not the fire. In fact according to the USA Federal Commission of Communications, 95% of all damage within telecoms facilities is non-thermal. The by-products of smoke from PVC and digital circuit boards are gases such as HCL and these gases will cause corrosion of IT equipment. Even at 16 micrograms/cm² there is moderate corrosion with long-term effects on electronics, at 30 micrograms/cm² the corrosion is active and the effects are short term. Above this the damage to equipment is detrimental to ongoing performance.

Figure 2 An ASD actively samples through the use of an aspirator and uses highly sensitive optics to sense smoke



The shortfalls of conventional fire detection solutions

There are several types of common smoke detection technologies often deployed to protect equipment and facilities – spot detectors, beam detectors and rate of rise heat detectors. While these technologies are adequate in some scenarios, each has a shortfall that prevents it from being appropriate for a VEWSD approach.

Spot detectors, also called point detectors, are one of the most common types of smoke detectors used today. Spot detectors are “passive” in that they wait for smoke to enter a detection chamber where an optical sensor identifies the presence of smoke. A key problem with spot detectors is that dust, insects and other airborne debris can impede the flow of air and smoke into the detection chamber. This can lower sensitivity and also cause them to become prone to nuisance or false alarms in some environments.

Beam detectors monitor a beam of light between two elements to detect the presence of smoke. When a significant level of smoke disrupts the beam, an alarm is activated. Unfortunately, beam detectors are prone to nuisance alarms from obstructions or building movement. These false alarms reduce confidence in the effectiveness of beam detectors and often lead to disablement. In addition, beam detectors require regular cleaning and maintenance of reflectors and beams surfaces due to dirt and contaminants in the air.

As indicated by their name, **Rate of Rise Heat Detectors** measure the rapid rise of ambient room temperature to identify the imminent threat of a fire. Rate of Rise Heat detectors are often integrated with fire suppression systems and are typically mounted on ceilings where heat from a fire collects. Unfortunately, a smoldering fire typically produces only low initial levels of heat, making these detectors ineffective for early detection.

Aspirating smoke detection solutions

A new breed of Aspirating Smoke Detector (ASD) solutions is gaining rapid adoption within industrial facilities. ASD solutions are designed to detect

the earliest presence of a fire while it is still in the first stage of development, before smoke may be visible to the human eye. The most effective ASD solutions address reliability issues found in conventional smoke detectors through an alternative approach to capturing and analyzing air samples called aspiration. Aspirating smoke detection solutions use multiple air sampling tubes, spread out across large open facilities, to capture and condition air samples. These samples may be conditioned to remove dust and other contaminants that can cause false alarms with conventional smoke detectors. Finally, air samples pass through a highly sensitive centralized laser detection unit. If the presence of smoke is detected, alarm signals are processed and transmitted to centralized monitoring stations, fire alarm panels, as well as to integrated systems such as building management, equipment control or fire suppression systems. The entire process takes only seconds. Because aspirating detectors are actively sampling the air in a facility, they are tolerant of smoke dilution and are reliable in high airflow environments. Because they monitor the flow into the pipe network and indicate a flow fault if the flow is too high (broken/open pipe) or too low (blockage) they provide an additional layer of supervision that passive point (spot) type smoke detectors cannot provide.

Active and ready for extremes

Spot type smoke detectors are ‘passive’ detectors in that they wait for smoke and rely on the airflow to transport the smoke to the detector. Therefore their performance is affected by high airflow. Since the rate of smoke generation in a smoldering fire is relatively small, and the airflow velocity around the equipment or in the facility may be relatively high, the movement of smoke is dominated by the airflow of the mechanical systems. Furthermore the smoke generated during the incipient stage is not hot therefore there is very little thermal lift. The smoke dissipates more widely and is diluted. This often prevents smoke from moving directly to the ceiling of an industrial facility, where spot type detectors might be located according to fire codes. An ASD



Smoke means an immediate alarm.

SecuriRAS® ASD aspirating smoke detector with HD sensor

Securiton AG, Alarm and Security Systems
www.securiton.com, info@securiton.com
 A company of the Swiss Securitas Group

SECURITON
 For your safety

FIRE RAY®

Optical Beam Smoke Detectors



- Low cost protection of large areas
- Easy Installation and low maintenance
- Worldwide approvals
- Over 600,000 installations worldwide
- Variety of models for all applications

A range of accessories are available:-



FIRE RAY® - The leading light in smoke detectors

Forbidden City, Beijing protected by FIRE RAY®



**FIRE
 FIGHTING
 ENTERPRISES**

9 Hunting Gate, Hitchin
 Hertfordshire SG4 0TJ

T +44 (0) 1462 444740

F +44 (0) 1462 444789

E sales@ffeuk.com

W www.ffeuk.com

system is 'active', constantly sampling the air from multiple points throughout the environment of a piece of equipment or the broader facility. It is not totally dependent on thermal energy to transport the smoke to the detector. The active nature of ASD systems overcomes the uncertainties of smoke ingress through insect screens and the other components of a spot detector that are designed to keep insects and smoke out. The passive nature of spot detectors is the cause of their reported poor response, well outside of manufacturer's quoted figures. It is also the principle cause of many spot detectors remaining in service despite their contamination and risk of failure in a real fire event.

The active detection method used by ASD allows the use of clever methods to keep the detector optics clean, such as the use of a clean air barrier within the laser chamber. This allows ASD to operate in harsh industrial environments with high levels of pollutants such as dust and dirt, without risk of detector contamination. ASD are frequently used in the most harsh environments such as coal bunkers of power plants or heavy manufacturing environments. The use of a pipe network and filtration of the air sample allows contaminants such as dust and lint and even harmful gases such as HCl to be removed before being sampled at the sensitive detector.

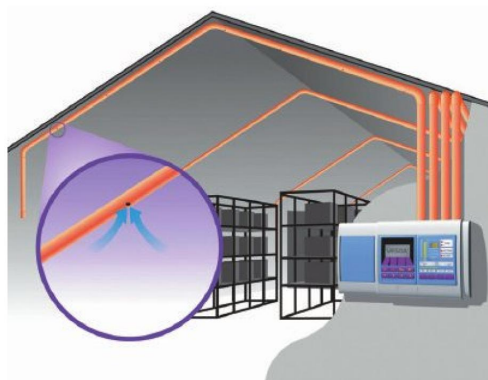
Sensitivity in large open industrial spaces

Cumulative air sampling refers to the way the ASD sample smoke over the network of sampling points, allowing each to contribute to the smoke being sampled at the detector. Within a large open space or high airflow environment this phenomena becomes very useful as particles of smoke are spread through the facility allowing the cumulative sampling effect to take place.

Take the example of a 20,000 square foot industrial facility room with 20 sample points on the ceiling. If the detector alarm sensitivity for the first level of alarm is set to 0.03% obscuration/ft this effectively makes each sample point's sensitivity $0.03 \times 20 = 0.6\%$ obscuration/ft. That is, if only one sample point was exposed to smoke it would require 0.6% obscuration/ft to trigger an alarm. This is because the fluid mechanics of the model takes into account dilution caused by the other holes. Using the same example, if smoke enters three holes the effective sensitivity required to trigger an alarm is 0.03×20 divided by 3 = 0.2% obscuration/ft. Clearly, cumulative sampling allows much lower levels of smoke to be detected and therefore, allows very early warning.

If the same room was designed with EWSD and each spot type detector was rated at 2.5%

How ASD works



ASD are quite different from conventional spot type smoke detectors. ASD typically comprise a number of small-bore pipes laid out above or below a ceiling in parallel runs, some meters apart. Small holes, also some feet apart, are drilled into each pipe to form a matrix of holes (sampling points), providing an even distribution across the ceiling. Air or smoke is drawn into the pipework through the holes and onward to a very sensitive smoke detector mounted nearby, using the negative pressure of an aspirator (air pump).

The VESDA ASD systems have sensitivity some hundreds of times higher than conventional smoke detectors, yet its false alarm rate is exceptionally low (according to independent surveys). This reliability comes from its high immunity to the major sources of false alarms—dust, draughts and electrical interference. Accordingly, the entire zone is monitored for the early symptoms of overheating materials, possibly hours before a fire develops. This generally allows plenty of time for human intervention, or automatic intervention by the operation of an electric circuit breaker for example (which removes the source of heat – the electric current). The primary role of Air Sampling smoke

detection is, therefore, fire prevention. Figure 2 illustrates the stage at which a VESDA smoke detector can detect smoke.

One of the most exciting features of the VESDA System is its flexibility in the setting of its sensitivity. The detector alarm thresholds can be set up to 6% obscuration/ft. Obscuration is the effect that smoke has on reducing visibility. Higher concentrations of smoke result in higher obscuration levels, lowering visibility. The first three thresholds would typically be set with Alert 0.009% obscuration/ft., Action at 0.018% obscuration/ft. and Fire1 at 0.036% obscuration/ft. in a relatively clean environment. Then there is the opportunity to set Fire2 threshold at 3% obscuration/ft. for example, acting as confirmation of a serious fire event, with the option to activate a suppression system at that point. The provision of these alarm thresholds allows for activating an early and controlled response. For example, the Alert Alarm (the first alarm) condition may be used to call local staff to investigate an abnormal condition. Should the smoke condition continue to increase the Action threshold may be used to initiate smoke control, begin a warning sequence via the evacuation system and alert further staff members via paging or SMS to mobile phones. The FIRE1 Alarm (the third threshold) indicates that a fire condition is very close or has started. At this stage the building is evacuated, the zone on the fire alarm control panel is activated and the signal transmitted to the local monitoring company and fire department. The FIRE2 Alarm threshold will activate once the level of smoke is significant enough to calculate that a fire has started and therefore suppression systems can be activated. For the first time, one product can provide very early warning as well as initiate suppression at a much later stage. Of course, if building fire systems and procedures have operated correctly, then early intervention should preclude operation of the FIRE2 threshold – but it's a safety net providing control of the last line of defense.

Ship Halon Phase Out

GIELLETM
www.giellemarine.com

Retrofit with Gielle Clean agent fire
suppression systems

- Utilize existing piping
- 1 to 1 cylinder/nozzle replacement
- Existing Halon Systems / Existing HCFCs Systems
- Express service
- Worldwide 24h service
- Full range of International Approvals

Imo Halon Banking authorized
FP.1/Circ.37 - Jan 2009



Gielle / info@giellemarine.com



Figure 3 The new VESDA VFT-15 brings high sensitivity ASD to 15 zones of flexible sampling



obscurations/ft, the alarm would only trigger once the smoke density has reached this point throughout the room or at one detector. Many mission critical environments have large areas and tall ceilings which often results in dilution. In addition the areas may be subject to air flow to cool equipment, processes or workers. The high airflow mixes any smoke quickly in the large space. Under this scenario ASD really shine, as all the sample holes in the system, would see the same smoke level (although at an extremely low level) and would immediately cause an alert condition at the ASD detector. This is an example of the benefit of the cumulative detection.

Ease of maintenance

Because the sampling pipe can be placed remote from the actual ASD it is possible to have a system protect one environment, such as a busy manufacturing assembly hall, and have the detector placed nearby in a service closet where it is secure and easily serviced. There is no need to service the sample holes regularly and the system can be tested by placing smoke in the last hole.

In-cabinet and integrated-equipment detection

Interest is developing regarding the application of ASD within industrial control equipment cabinets and to provide integrated protection for specific equipment or assets. It is desirable to fit ASD within these cabinets because in some circumstances it would not be acceptable for smoke from a fire within the cabinet to 'breach' the cabinet, enter the mission-critical facility, contaminate other systems or processes and possibly activate main alarms and suppression systems.

In-cabinet smoke detection and action enables an excellent very early warning solution because:

- The sampling is performed closest to the source of the fire, before dilution, which allows earliest detection
- Sampling within the enclosure allows clear identification of the source of the problem. This "addressability" reduces time, effort and error in identifying and remedying the problem.
- The detection occurs before any spread of the risk; loss can be minimized: Smoke is not allowed to contaminate or otherwise affect other systems in the facility.
- Compartmentalization ensures that in worst cases the estimated and possible maximum loss and business interruption estimates are minimized (for insurance assessment)

- The background dust and smoke levels within sealed enclosures are relatively consistent. Also, the airflow dynamics within a sealed enclosure can be predicted with relative confidence by computational fluid dynamic models. This ensures that detection systems can be designed, built and commissioned with confidence of their efficiency and performance.
- Fire responses can be more automated and cost and downtime from fire responses, such as use of suppression, is reduced.
- Better control of the issue management and escalation processes is possible—an alarm can be routed to the data center manager as an "environmental alarm", rather than reporting via the main fire alarm system. This staged response to a fire threat allows facility staff investigation and possible intervention, an ability to move processes from problem equipment, action such as power-down of problem equipment and, if necessary, suppression of an escalated fire. Such a staged response will often negate the need for suppression to be fitted or, if fitted, will negate the need for expensive suppressant to be released.

Achieving very early warning with ASD while also having fire source location is now possible. With the release of the VESDA VFT-15, up to 15 cabinets, small rooms or pieces of industrial equipment can be protected with independent indication of the location of the incipient fire risk. The use of flexible capillary tubing also makes addition of protection to existing equipment simple.

Solving problems in the industrial world

Due to the huge financial loss and potential business risk, a mission-critical industrial facility cannot risk downtime especially of the size and duration potentially caused by fire and smoke contamination. The most important system that contributes to the prevention of fire is a very early warning smoke detection system such as a VESDA system that meets the performance objective to detect smoke at the very early stages of a fire.

The VESDA Air Sampling Smoke Detection System features provide the designer flexibility by meeting design requirements of prescriptive codes as well as facilitating use of today's performance-based fire engineering methodologies. These enabling features include:

- Detection of both small incipient smoldering fires and large flaming fires in large open spaces and in high airflow
- Flexibility to design on ceiling, in cable ducts, in exhaust systems and across return air intakes, as well as in cabinets and in targeted equipment
- Reduced nuisance alarms and tolerance to contamination through protected optics and the ability to pre-condition the air sample to remove contaminants
- Multiple alarm levels that can be used to provide:
 - Reduced cost of any nuisance alarms
 - initiation of orderly shutdown of industrial systems and related processes
 - removal of contaminated air (via activation of exhaust systems)
 - communication of reliable early warning (to fire wardens, brigades, etc.)
 - initiation of staged evacuation
 - initiation of automatic suppression

FIVE GOOD REASONS WHY HEROES TRUST STREAMLIGHT.

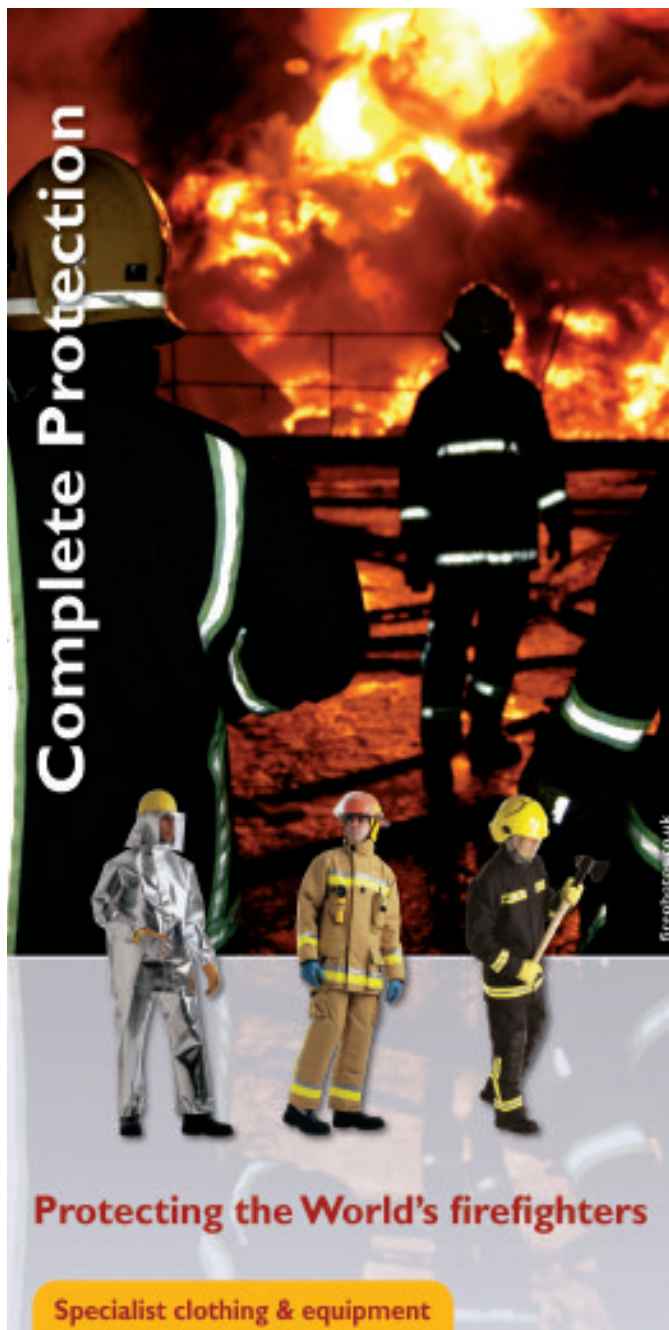


These are the lights that save lives. They're powerful, dependable, virtually indestructible, with innovative features like blue taillight LEDs, Smoke Cutter Optics, tilt and twist heads. From handheld lanterns and ultra-bright flashlights to lightweight lanterns that clip on to turnout gear, Streamlight is the name more firefighters trust to light the way.



STREAMLIGHT
Heroes Trust Streamlight™

30 Eagleville Road, Eagleville, PA. USA 19403
1-800-523-7488 • www.streamlight.com



Complete Protection

Protecting the World's firefighters

Specialist clothing & equipment

Bristol Uniforms is one of the World's leading designers and manufacturers of innovative firefighter protective personal equipment. We supply to fire and rescue services in over 110 countries offering a comprehensive range of equipment and services including:

- clothing that meets international performance standards for use in structural close proximity and wildland firefighting as well as urban search and rescue protective clothing
- a complete range of accessories, helmets, boots, gloves and tools
- Bristol Care™ - offering flexible solutions for garment care and maintenance.

Please visit our website for full details of all product and services or contact us directly.

Bristol Uniforms Ltd.
Bristol, United Kingdom. BS16 5LL
Telephone +44 (0) 117 956 3101
enquiries@bristoluniforms.co.uk
www.bristoluniforms.com

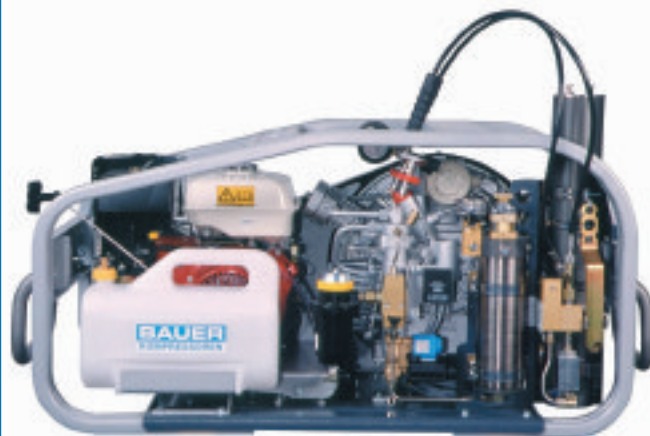


BAUER COMPRESSORS



Verticus 5 /KAP 5 stationary compressor

The most advance modular unit system used in fire stations with SPC-compressor control B-CONTROL, P Filter System and integrated filling panel. The unit can be upgraded to a silenced unit VERTICUS 5 type and additional filter housings, refrigeration dryer AIR-KOOL, external filling panels as well as storage cylinders can be easily fitted.



Mariner 250/320

The power pack for larger delivery of air, 250l/min and 320l/min. A newly developed, super-light aluminium chassis guarantees the best protection against corrosion! Inter- and after coolers made of stainless steel resist the toughest climatic conditions. The construction of the motor rocker stand reduces vibration for smooth operation as well as self-tensioning of the v-belt drive.

BAUER offers only Independently Tested Containment Fill Stations which were found to protect the operator from overpressure and fragmentation per NFPA 1901.

Containment Fill Stations – Stationary & Mobile

High-Pressure Breathing Air Compressors and
Auxiliary Equipment
Worldwide Sales and Service Network

BAUER COMPRESSORS ASIA PTE LTD

2 Penjuru Place, #01-05 Penjuru Tech Hub, 608783 Singapore

Tel: +(65) 6271 6271

Fax: +(65) 6272 3345

<http://www.bauercompressors.com>

Email: info@bauer-compressors.com.sg





Thermal imaging, getting the inside story

By Mike Tarbard

Argus Thermal Imaging

For the fire industry the Thermal Imaging Camera (TIC) has become an essential tool in the fight to save lives and property.

From its introduction and use in military fire fighting thirty years ago, the TIC has evolved into a versatile and cost-effective tool that no modern fire fighting force can afford to be without. Nowadays most fire services have a TIC as standard equipment on every front line appliance.

The TIC has evolved; it now has an important role to play in a range of markets. In the security industry, potential dangers can be located at ease, and in the insurance industry, revival companies use them to inspect flood damage.

At airports, fire brigades use TICs to enable them to negotiate through thick smoke to the heart of the fire and lay down foam as fast as possible. Their use extends further to preventing fires caused by brake overheating, identifying specific engine fires and recovering passengers from smoke filled cabins. To put their importance into perspective, if a major airport fire brigade doesn't have a TIC, then the airport can, and will, be closed down.

Indeed, the versatility of today's camera is such that it would be overly simplistic to say they are used for fire detection and the location of casualties. In fact, TICs can potentially prevent fires: on ships, an overheated motor can turn into

a raging fire in a matter of minutes, but a TIC can spot the danger before disaster strikes.

History

The TICs of thirty years ago were completely different to the state of the art devices used by today's fire fighters. In the late 1970s, the Central Fire Brigade Advisory Council in the UK examined technologies that could be used in assisting fire officers with locating casualties in fire and thick smoke. The report found that there was technology available, in the form of thermal imaging cameras that were already in existence – largely in the military, where they were attached to vehicles. By the 1980s, e2v Technologies (then EEV) had successfully trialled a TIC based on a vacuum tube, which was relatively cheap to produce and, unlike the cameras being used in the military, didn't need cooling to operate.

However, while the military could afford these early cameras, they were too expensive for civilian fire brigades and so remained a luxury. The first hand held TICs were still fundamentally military spec items, specifically designed for fire fighting by the world's Navies, but by the mid 1980s EEV had begun to supply their more cost effective units to civilian fire brigades. It wasn't until the 1990s that



TICs were manufactured specifically for civilian use. These cameras were similar to the military units and could operate just as effectively, but they were designed to save on costs; the cameras were now smaller, lighter and more affordable for local brigades.

It was billions of dollars of investment by the US Government which, in the mid 1990s, really enabled the development of TICs to gather apace. Working with the Government, Raytheon Corporation developed solid-state detectors with the intention of lowering costs of TICs and increasing their flexibility. While the US had invested primarily to develop TICs for military purposes, they were funding on the principle of 'dual use', whereby TICs would be available for use by both military

and civilian fire brigades.

These detectors – Focal Plane Arrays – are still in use and come in varied resolutions, the most common of which are 160 x 120 (19,200) pixels and 320 x 240 (79,800) pixels (and larger). With advanced software techniques they produce high quality, high performance images. It is worth noting that a common digital camera contains somewhere between five and ten million pixels, so there is clearly room for further development.

Today

Prior to the world of wireless, during training, a TIC would be fixed inside a training building with a cable leading to a monitor outside of the building, which would then relay the trainee's progress through the training scenario.

While this was useful for trainers to be able to see what was going on inside, it never gave them the real understanding of what the trainees were doing as they worked their way around the building. With the development of wireless transmission, the trainers can follow both the progress of the trainees through the training scenario and see exactly what they are seeing.

Wireless technology is not without its problems. Transmitted signals can be affected by interference and by some materials that buildings are made from; the thickness of the walls and the number of levels the building has can also weaken the transmitted signal.

"Wireless technology has caused several issues," says Paul Spooner, product manager for e2v's Argus camera. "As the signals can be easily affected it becomes inconvenient to the viewer as they cannot get a reliable view of the fire scene. While wi-fi is more reliable than the old analogue images, its range is not as good – analogue could see up to 200 metres ahead but wi-fi's reach is closer to 100 metres."



Making firefighting **safer!**



PAB Personal Protective Equipment

firefight series

Made of
composite fiberglass

FIRE HT 04 Composite

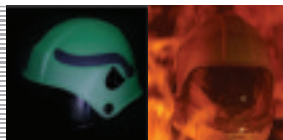
We are introducing the firefighter helmet of tomorrow. It is designed to protect the head in the most extreme conditions. Development and implementation of new composite technology in combination with established design enable full protection even at shorter (flash over flames) temperature exposures, reaching up to 1000 °C. These advantages are rounded up with extreme lightweight (1.200 g) and such design that supports a wide selection of compatible accessories. Structural firefighting has never been safer.



PAB Personal Protective Equipment
Most 26, 52420 Buzet – Croatia

tel: +385 52 662 662
fax: +385 52 662 254

info@pab-buzet.com
www.pab-buzet.com





2009 – the year of COFDM

In the development of TICs, 2009 will undoubtedly be seen as a hugely important year. COFDM or, to give it its full name, Coded Orthogonal Frequency Division Multiplexing, is a technology which is helping to extend the support provided to fire fighters by improving the communication of live thermal footage to the people outside the fire incident, or completely remote from the scene being viewed. In basic terms, COFDM is what forms the basis of DAB radios. In fire fighting terms though, it means a lot more.

Says Spooner: "COFDM hugely extends the distances to which we can transmit live footage. At a large fire scene in the UK, where seven or eight engines are in attendance, it is compulsory for there to be one command unit. Given that COFDM copes well with co-channel interference, the command unit is able to view live feed from four to eight separate cameras. This is a great step forward from the technology available until recently as it gives the command unit far more control over an entire scene at any one time."

e2v has been able to take this technology and bring to the market a COFDM transmission system that is integrated into a fire camera that can be used in extreme environments. Other applications for COFDM include the security industry.

COFDM currently has a range of greater than 500m, depending upon the transmitter power output, which is five times better than a wireless transmission, but without sacrificing reliability. Security of the COFDM transmission is excellent and the threats posed to WIFI transmissions are negated. However, what really sets COFDM technology apart is the fact that it maintains its 'non line of sight.'

"Non line of sight means that the cameras footage can be transmitted around objects," explains John Turner, technical specialist at e2v, manufacturers of the Argus TIC. COFDM is

currently an optional accessory for TICs, but I see it quickly becoming a standard part of the functionality expected by users."

With a clear picture quality and incredible transmission distances, commanders can now make decisions such as whether to send more resources to a fire scene based purely on the images, supplied from the scene, which are available for them to view in real time.

An essential tool

In the past, and partly because of their high cost, TICs were regarded as a luxury, a nice asset, but not something that was essential to fighting fires. Times have changed, and in a recent survey in the United States, a thermal imaging camera was high on the list of absolutely essential pieces of equipment for a fire fighting force. In the UK as well, says Spooner, they have become much more appreciated.

"Nowadays every fire brigade in the UK will have at least one TIC at their disposal," he says. "They have risen from being deemed an unnecessary expense to being a very sound investment indeed. New applications for TICs are always being developed. With each new camera comes an increase in technological capabilities, performance and also reliability."

Fire cameras and remote communications help to save lives in many situations, whether it's a serious road or train crash in a tunnel, an industrial incident involving gas cylinders, an earthquake or even helping to find someone in water.

In the past there was very little competition in the market place, but now increased competition means that users are substantially better catered for, with cameras becoming relatively cheaper and more reliable than their early military origins. With new applications being discovered all the time and new functionality being added the world of TICs has a great deal to offer.

APF

Foam Concentrates and Foam Systems for all applications



DAFO FOMTEC AB P.O Box 683 SE-135 26 Tyresö Sweden

Phone: +46 8 506 405 66 Fax: +46 8 506 405 29
E-mail: info@fomtec.com Web: www.fomtec.com

GB
SOLO
LIMITED
Fire fighting helmets and
thermal imaging cameras

S2 FIRE
INTEGRATED

**The smallest and lightest
fire fighting TIC in the world**

Weighing only 600g with the ability to adapt the camera to suit individual requirements, the **S2 Fire Integrated** takes hand held and hands free technology even further.

- Weighing only 600g.
- Suitable for use with all known breathing apparatus and gas masks.
- On Screen Temperature Display, both graphic and digital.
- On Screen Temperature Warnings.



S2 SEARCH & RESCUE
INTEGRATED

**Our cutting-edge technology
brings you the smallest long range
imager of it's kind, available today.**

The **S2 Search & Rescue Integrated** is water resistant and vibration proof. It gives clear man detection up to 1Km & vessel identity over several km's.



- Weighing only 600g.
- As an all round camera with the capability to monitor for 'man overboard'.
- Give vessel security and identify objects over long ranges is second to none.

SOLO TIC

**The ultimate all
in-1 helmet system
offering protection,
communication
and vision**

With the **SOLO TIC** you can identify objects through even the densest smoke by means of a fully integrated thermal imaging camera, which displays the image inside the face mask with the use of augmented reality viewing optics.



don't go it alone go with solo

For full details or to arrange a demonstration contact -
GB Solo Ltd. Tel: +44 (0)1609 881855
email: sales@gbsolo.co.uk • www.gbsolo.co.uk



SOLBERG

Solberg offers products of high quality and within the highest technology standards to the international fireprotection market

FIGHTING THE FIRE DRAGON

WITH CLASSIC AFFF/ATC, MODERN ORGANOHALIDES
FREE FOAMS OR CLASS A FOAMS



RE-HEALING FOAM™

Organohalides free foams



ARCTIC FOAM™

AFFF/ATC foams



FIRE-BRAKE FOAM™

Class-A foams

Head Office Norway

Solberg Scandinavian AS
Olsvollstranda
N-5958 Sæbevangen
Norway

Australia / Asia

Solberg Asia Pacific Pty Ltd
3 Charles St, St Marys, 2760, NSW
Telephone (612) 9673 5300
Fax (612) 9673 5303

Emergency Stock Hotline

(Norway)

+47 976 40 000

(Asia Pacific Region)

+612 9963 3148



www.solbergfoams.com



Fire extinguishers

A fire in an industrial enterprise can have incalculable consequences: the economic damage can bring the company to the brink, environmental damages, caused by the fire, present a high liability risk. Therefore it is of existential significance for the companies to detect the manifold risks early, to assess them correctly and to take the necessary measures.

By Dr. Wolfram Krause,

Nils Falter

and

Anna Maria Mrcela

Economic and health burden by a fire

Several surveys in Germany achieved the same result independently: after a blaze 43% of the concerned companies did not start business again and had to declare bankruptcy. The remaining companies forfeit their reliability and lost customers and market shares. And after only three years further 28% of the companies disappeared also from the market. In other words: Three quarters of the companies concerned by a blaze did not survive such a disaster.

In case of a residential building fire 17,000 environmental toxins are released. The environmental pollution can be much greater in case of fire in industrial plants. High smoke emissions with burden of the residents, release of toxic gases, contamination of water by emerging chemicals with risk for the drinking water supply, contamination of the soil: consequences, which occur in case of blazes in industrial plants.

Recognise and assess dangers in time

In view of the immense economic and environmental liability risks the persons responsible develop a greater problem awareness of the meaning of the safety and fire protection. Particularly small industrial enterprises require a clearly defined risk-management-policy. But this often lacks in operational everyday life. Basis of a risk management system is the proper analysis of the risks, the

company is subject to. In a first step all potential threads are compiled. Subsequently these possible damaging events are evaluated concerning the frequency and seriousness, with which they can affect the company. On the basis of this analysis appropriate measures must be taken for their coping.

Most frequent causes of fire

Arson, open fires, lightning, electricity and human error are counted among the most frequent causes of fire. For example a fire in hospitals arises often by unattended candles (advent wreath). The staff is called to the invalids or to an assignment and leaves the burning candles unattended. Also smoking belongs to the most frequent causes for fire and explosion damages. Smoking as well as use of fire and open lighting is forbidden in rooms and areas which are at risk of fire and explosion. Rooms and areas are considered as fire-endangered in which highly inflammable materials exist in dangerous quantity, e.g. production and storage areas with flammable materials. Rooms and areas are considered as explosion-endangered, in which gases, vapors or dusts, which form explosive composites with atmospheric oxygen in dangerous quantity, e. g. stores with flammable gases and liquids, paint shops, rooms with flammable dusts. The disregard of ban on smoking resp. its toleration can have in case of emergency not only civil

For further details, contact:
**Minimax Mobile Services
 GmbH & Co. KG**
 Minimaxstr. 1
 D-72574 Bad Urach
 Tel: +49 (0)7125 154-229
 Fax: +49 (0)7125 154-166
 Email:
 exportmobile@minimax.de
 Websites:
 www.minimax.de
 www.minimax-mobile.com

and criminal law consequences, but also cause the loss of the coverage for the company.

The solution: Fire extinguishers

Fires do not normally arise self. They are mainly caused by human activity and refrain. They can be avoided by human care. Who knows a lot about the possibilities of fire fighting, helps to reduce or avoid damages. The earlier a fire is detected, the more effective it can be fought and the lower the damages are. Ideally an existing fire detector releases alarm and thereby initiate measures for fire fighting, the warning of persons in a building and, for property and personal protection, it alerts responsible security staff or the fire brigade. If a fire arises, a fire extinguisher is suitable for immediate use for fighting minor fires and initial fires. It contains extinguishing agent, which is emitted by pressure, stored or produced at taking into operation. Portable fire extinguishers are regulated in Europe by the European Standard EN 3. Fire extinguishers must be type tested and certified. The red painting of the device serves for easy finding in case of fire.

**The earlier a fire is detected,
the more effective it can be
fought and the lower the
damages are.**

A survey of the German Fire Protection Manufacturers Association "bvfa" in the year 2006 has shown: 82% of the fires in companies could be extinguished already before arrival of the fire brigade with the fire extinguishers, which are at disposal in the company.

In Germany it is legally prescribed to have fire extinguishers at disposal in the company. The quantity of the fire extinguishers to be provided depends on the type and size of the company.

Behaviour in case of fire

For the effectiveness of rescue and fire fighting measures the correct Behaviour of the persons affected is of major significance. Everyone should know about the use of extinguishers and what to do and how to behave in dangerous situations.

An effective fire protection by selection of the right partner

An effective fire protection can only be achieved by an overall plan which is adapted to the individual requirements – so called holistic fire protection concept. All necessary single measures for fire fighting must be combined optimal. Thereby the following shall be achieved: the guarantee of the personal protection and consideration of the environmental protection acc. to the legal prescriptions especially for companies and the maintenance of the manufacturing and supply capability as well as the securing material assets.

As an fire extinguisher producer with the highest rate of vertical integration, Minimax Mobile Services GmbH & Co. KG stands for reliable operability, longevity, sophisticated technical designs and top 'Made in Germany' quality.

Through automated production processes and high-quality technical standards, we are able to meet all of our clients' financial requirements.

In addition to tried and tested fire extinguishing advantages, such as:

- A single-lever fitting for uniform operation of all device types
- standard stand pins for secure positioning whilst preventing corrosion on the bottom of the container.
- thermoset inner layer for wet extinguishers to guarantee excellent protection against corrosion inside the container.
- specially layered CO₂ propellant gas cartridges to guarantee the permanent operability of wet extinguishers
- A CO₂ overcharge for foam extinguishers for even extinguishing agent spreading during the whole operation.

Manufacturers should also be committed to innovation with new generations of fire extinguishers setting up new standards:

More powerful than ever

The increased capacity of a new generation is a real attention grabber. Improved extinguishing solution formulas and carefully aligned device configuration ensure excellent extinguishing power.

More user friendly

Revised operating instructions simplify extinguisher handling through the use of more symbols and less text. As a result of this, even untrained users can safely operate the extinguisher in the event of a fire. The colour-highlighted operating elements lock, compression lever and hose handle ensure safe handling in the event of a fire.

More multi-faceted

Product ranges should be expanded to include newly-developed housing made of impact-resistance high-performance plastic with tried and tested single lever operation. The advantage of this material is a weight reduction of up to one kilogram in comparison with other housing versions.

More environmentally friendly

The use of high-performance extinguishing solutions which are completely harmless to both animals and humans, for safe extinguishing with no sustained risks for the environment should be an obligation.

Finally we should also look to design extinguishers creating aesthetic accents.

For special applications, fire extinguishers don't have to be red, that shows a special design edition: Fire extinguishers with motives designed individually according to customers preferences ensure an original way of combining safety and style in tastefully arranged objects.

Thanks to the versatile and sophisticated air-brush technique, creativity has no limits. There is the possibility to select from numerous suggested motives. In addition you can create your own design and have it artistically rendered or you show your company logos, crests or emblems. The shiny and hand-polished chrome extinguishers are already considered classics among the design series; through their timeless elegance.

In the 21st Century those new generations of fire extinguishers will save life, and combine environmental aspects while protecting your properties. **APF**



Saint-Sea Group is an international group company with its headquarter in Hangzhou, China and divisions/sales offices in Denmark, France, Spain, America and Argentina. Our own factory Power Saints, located in Yuyao city of Zhejiang Province, with yearly production capacity of two million pcs cylinders and fire extinguishers, has moved to a new factory in Jan. of year 2009 with higher production efficiency, higher quality level and with EN3, CE and Australian Approvals. We are also the biggest exportation company in China of full range fire fighting products including fire extinguishers, components (cylinder, valve, powder, pressure gauge etc.), as well as water system products (hose reel & cabinet, branch-pipes, landing valve, couplings, fire hose etc). Sprinklers, detectors and fixed suppression system (CO₂, HFC-227ea etc.) are also within our range of supply. Besides providing the products with European/American standards, we are also very strong at making OEM products as well as developing new products for customers. We sincerely invite all the esteemed customers to visit our new factory in year 2009 and hope to further expand our sales network and company image for providing best service to our valuable business partners!

International sales office:

Room 301-302, Building 20 Green Graden, No. 148, Zhaohui Road, Hangzhou, P.R China PC:310014
Tel: 0086-(0)571-85772095/85772184/85772331
Fax: 0086-(0)571-85772196/85772094
E-mail: saintsea@emalldisk.com linda@saintsea.com



**QUALITY
PRICE
SERVICE**



Factory address:

TianHua Industrial District, LangXia Street Scene, YuYao City, Zhejiang P.R China . PC: 315480

Tel: 0086-(0)574-62631595
Fax: 0086-(0)574-62662919

**Outstanding
cutting force**

performance Line

501 kN

**Combination Tool
Type LH-CO-1360**



available
with Mono Coupling

- Lightweight, powerful combi tool
- Spreading width up to 360 mm
- Cutting force up to 501 kN
- Spreading force up to 360 kN
- Integrated attachment points for the direct connection of pulling chains



INTERSCHUTZ
DER ROST HAHN
INTERNATIONALE LEISTUNGEN FÜR RETTUNG
BRAND - LÖSCHGERÄTE UND SICHERHEIT
LEIPZIG 7. - 12. JUNI 2010
Hall 2 / Stand F62



**LANCIER
Hydraulik**

GmbH & Co. KG

www.lancier-hydraulik.de

For more
than 35 Years



Rescue Tools
„Made in Germany“



Rescue Tools



Power Units



Rescue Platform



Stabilisation



Lifting Bags



Floodlight

Retrofit with SEVO 1230

Clean Agent Fire Suppression Systems

Designed with **3M** Novec™ 1230 
Fire Protection Fluid

Retrofit with SEVO 1230 Systems:

- Utilize existing piping
- 1 to 1 cylinder/nozzle replacement

• Existing Halon 1301 Systems

• Existing HFCs Systems

& High Global Warming Materials

No other halogenated alternative can match:

- Zero Ozone Depletion
- Atmospheric Lifetime of 5 days
- Global Warming Potential 1
- Life Safety Margin 67-150%
- 20 year environmental warranty



www.sevosystems.com
info@sevosystems.com
Phone: 913.677.1112

SEVO  **SYSTEMS**
The Safe Environmental Choice

14824 W. 107th Street
Lenexa, KS
USA, 66215



Innovative Approaches to 21st Century Special Hazards Fire Suppression

By Richard Niemann

Engineering Manager,
Product Development,
SEVO Systems

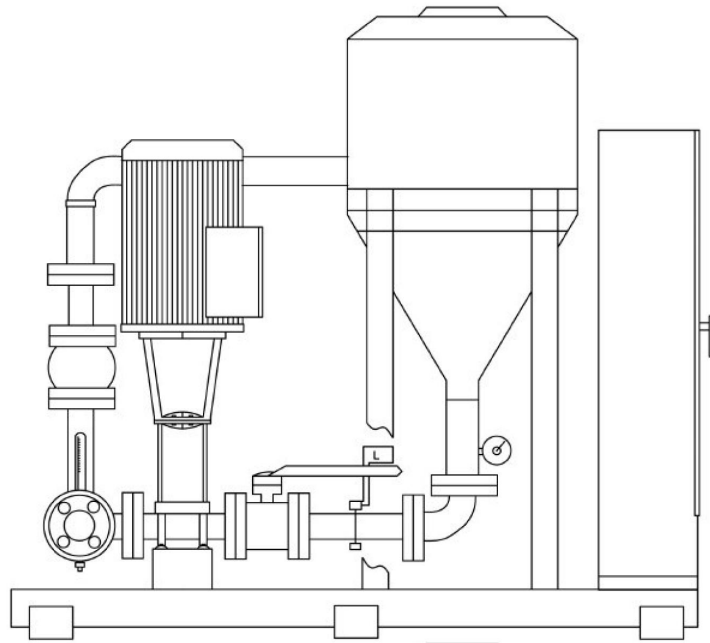
Since the world started addressing the rapid loss of the atmospheric ozone layer under the Montreal Protocol, there has been a continuing effort to identify alternatives and to replace halon in fire suppression.

First generation halocarbon alternatives, such as PFC's and HFC's have been determined to negatively impact global warming and are coming under increasing regulatory scrutiny. Non-halocarbon alternatives, such as water, inert gas, aerosols and others have been found generally best suited to specialized applications, but not all have been successful in replacing halon 1301 in total flooding applications. The most promising new alternative to halon, offering similar total flooding ability while meeting ever increasing demands to reduce the impact on global warming, is the fluorinated ketone known in fire protection standards as FK-5-1-12 (3M™ Novec™ 1230 Fire Protection Fluid). From a practical standpoint, FK-5-1-12 allows for a multitude of application techniques as it is a liquid under ambient conditions. Engineers may now design practical fire suppression applications that would be impossible using halocarbons

that are gaseous at ambient temperatures.

Industry is often slow and resistant to change when it comes to addressing fire protection by means other than using existing standards. New fire protection standards can take years to establish and they require considerable debate and consensus, often by those who may have a particular interest in the "status quo". FK-5-1-12, being a liquid at ambient temperatures, allows for alternative application techniques that give fire protection engineers tremendous flexibility in the design of fire suppressions systems either with existing "pressure vessel" technology or with new "non-pressurized" technologies.

At the Halon Options Technical Working Conference (HOTWC) in Albuquerque, NM in 2000, Richard Gann of NIST (National Institute of Science and Technology) gave the keynote address, titled "A Millennial View of Fire Suppression".¹ In this



address, he made reference to the future of fire suppression, predicting that at the end of the 21st century there would be portable “plug and play” systems which would employ next generation suppressants which would be effective while meeting environmental objectives. Having realized that prediction early, SEVO® Systems of Lenexa, Kansas USA developed the tools which meet the dual criteria of efficiency and environmental safety. One approach was to utilize design efficiency and achieve cost savings by recognizing, and then utilizing, the inherent properties that differentiate a gas from a liquid and then applying these techniques to existing system technology. This led to the development a 500 psi system (SEVO® 1230 “True Retrofit™” System) that allows, in nearly 90% of the cases experienced to date, utilization of existing 360 psi halon and HFC pipe networks while conserving floor space for cylinders using FK-5-1-12. This system could not be envisioned under current standards that originate from the use of ambient gaseous alternatives such as HFC’s and inert gases. The increased pressure to 500 psi cannot be safely accomplished with a gas such as HFC-227ea or HFC-125 while using conventional 500 DOT/TC welded cylinders in designing a fire suppression system.

SEVO Systems was the first fire suppression system manufacturer to adopt FK-5-1-12 as an alternative to halon, as well as to the first generation halocarbon alternatives, for total flooding applications. An innovative company, embracing the new FK-5-1-12 as a unique alternative, it helped usher in the second generation of halon alternatives by achieving the first UL listed system using FK-5-1-12. SEVO Systems recognized early that the liquid FK-5-1-12 worked like a gas and subsequently designed the “True Retrofit™” system to take advantage of these unique properties.

Confirming SEVO’s commitment to meet the demands for sustainable fire suppression via “fluid” technology, the following product platforms are completed or underway to utilize these approaches in future advances in fire suppression technology.

SEVO Systems current product line successfully

integrates smart fire suppression design with desirable environmental preservation. Included in the SEVO family are:

The “True Retrofit™” system maximizes the FK-5-1-12 product performance while utilizing standard welded 500 DOT/TC low-pressure cylinders. The active discharge pressure after cylinder/valve and manifold is 416 psi or less. Utilizing this maximum operating pressure allowed for a product line to be created that greatly increased the ability to advance the conversion from Halon’s and HFC’s using existing pipe networks. This “one to one” innovation reduces the labor and time to retrofit a halon system, reducing the cost to the end user.

The Flex™ Family of suppression systems was developed to take advantage of new local application standards, reducing cost, increasing speed of protection, adapting to change in the industry. Flex Systems are offered in two configurations: “Focus™” or “Multipoint™”. A “Focus” system utilizes the tubing as both the detector and the release of the fluid. A “Multipoint” system utilizes tubing as the fire detector while a system of piped nozzles delivers the fire suppression agent. The SEVO Flex family of systems uses Chapter 6, “Local Application”, recently adopted into the NFPA 2001, 2008 Edition, for introducing an innovative approach to protecting the component versus total flooding an entire space. By focusing on the individual piece of equipment and/or cabinet, Flex system equipment can be utilized to bring suppression to a high value asset. The Flex system becomes an integral part of the asset it is protecting by reducing the time it takes to respond and increasing the speed of suppression, thereby limiting a fire event and its subsequent damage. Concentrating on the high value asset and not the space in which it is enclosed can be substantially less costly. Flex systems are currently available in gaseous discharge with future product line extensions to include a misting application designed to maximize efficiency in extinguishing performance.

FIRE SUPPRESSION • FIRE ALARM FIRE SOLUTIONS



FM-200®

Waterless clean agent
fire suppression

ECARO-25®

Cost-effective clean agent
fire suppression

PROINERT®

Inert gas system
with unique patented
flow control valve

CYBERCAT®

Comprehensive line of
intelligent fire alarm
control systems

PRECISE® & SIGNIFIRE™

Event management and
Video smoke systems

NEW INTEGRATED VOICE EVACUATION

For over 30 years, Fike has provided reliable and innovative fire protection systems. Today, Fike systems are trusted around the world. We have application experts in key regions to provide fast, responsive service. In addition to our well known clean agent product line, we offer a complete fire alarm system with the flexibility to meet a variety of application needs.

Fike®

WWW.FIKE.COM

+60-3-7859-1462

Visit Fike at Intersec: January 17 - 19, booth #309 in the US Pavilion



Unitor 1230 Clean Agent Fire Extinguishing System for the Offshore and Maritime Industry

Wilhelmsen Ships Equipment have industrialized and adapted the SEVO 1230 System for the maritime industry. The Unitor 1230 Clean Agent Fire Extinguishing System is designed as a total flooding system for machinery spaces on Category A, cargo pump rooms on tankers, cargo compressors rooms and other spaces onboard vessels or on offshore installations needing fire protection.

The system can be applied on merchant marine and offshore structures as design is in accordance to SOLAS and in compliance with Class requirements.

All components of the maritime application of the system are designed for optimum systems performance. The system has small pipe dimensions, saving installation space, weight and lowering total installed cost. It has the largest nozzle coverage designed specifically for the offshore and marine industry, with a unique nozzle discharge pattern.

Technical Design of Maritime application

The Unitor 1230 Clean Agent Fire Extinguishing System comprises FK-5-1-12 liquid, stored in steel cylinders, pressured with nitrogen to 34.5 bar (500 psi) at 21°C (70°F), connected via cylinder valves, flexible hoses or pipes to distribution pipelines with discharge nozzles.

Different types of installation can be used depending on storage place accessibility. As a modular system the cylinders are stored directly in protected compartments or adjacently outside. As a centralized system, the requested amount of extinguishing fluid is stored in central cylinders out of protected spaces and distributed as needed via distribution valves. The system can also be installed as a combination of these.

SEVO Systems is currently developing a next generation low pressure delivery system that utilizes uncharged, ambient pressure storage containers. SEVO envisions it to be the future for compartment and containment applications for marine use.

Closed Filling Pump Station technology allows onsite refilling of the FK-5-1-12, giving the user increased capability to refill a discharged system within 24 hours after discharge as required under NFPA 2001. This technology also fulfills the need for a back-up reserve system. Traditional halon and HFC systems often require a reserve

supply in many locations due to the time it takes to get a system to an off-site refill location, thereby doubling the initial equipment cost. The Closed Filling Pump Station allows for fast and easy re-filling of cylinders with the FK-5-1-12 to put fire protection systems quickly back into operation.

Clean Agent Pumping System technology allows FK-5-1-12 delivery to multiple combustible hazard areas from a single uncharged (ambient pressure) storage supply. This product can be expanded and adapted to use multiple extinguishing mechanisms i.e. liquid, mist or as a gas in either local applications or total flooding. By taking advantage of the unique char-

acteristics of the sole second generation "fluid" to replace halon and HFC's is leading SEVO Systems in a "revolution of innovation" in the application of clean agents into the fire suppression industry.

SEVO Systems was the first systems manufacturer to adopt the innovative technology of 3M Novec 1230 Fire Protection Fluid into fire suppression systems. The company is uniquely positioned to change the face of the industry with these innovative approaches to effective clean agent fire suppression. With only half of its 10 step product development package rolled out to the public so far, future products hold the promise of further advancing fire suppression technology. By taking advantage of the unique properties of the fluid and adapting to the changes in fire standards, SEVO will be a major contributor to the

The company is uniquely positioned to change the face of the industry with these innovative approaches to effective clean agent fire suppression.

industry to meet the needs for the future. SEVO's vision of the future in the fire protection industry is for fire suppression systems that do not require pressurized cylinders. Having fully adopted 3M Novec 1230 Fire Protection Fluid as the only true sustainable alternative to halon, a fluid backed by 3M's Blue Sky Environmental Warranty, to its entire fire suppression product line and in future developments, SEVO is uniquely positioned to meet the needs for sustainable fire suppression for critical needs long into the future.

SEVO Systems is an international company focused on sustainable clean agent fire suppression. SEVO is a registered trademark of SEVO. Flex, "True Retrofit", "Focus" and "Multi-point" are trademarks of SEVO Systems. 3M and Novec are trademarks of 3M. Blue Sky is a service mark of 3M. **APF**

1. Gann, Richard G. 'A Millennial View of Fire Suppression.' Halon Options Technical Working Conference. Albuquerque, NM. 2 May 2000. *BRFP Publications Online Library*. BFRP Publ. 27 Apr. 2009 <<http://www.fire.nist.gov/bfrlpubs/fire00/PDF/f00082.pdf>>.

SOME THINGS ARE BORN TO BECOME OBSOLETE.



No matter what critical assets you intend to protect, ANSUL® SAPPHIRE® and INERGEN® clean-agent fire suppression systems are today's answer. Both suppress the most intense Class A, B and C fires as quickly as halon and HFC/HCFC systems. Both do so without the damage of water. And best of all, both are sustainable, protecting your investment from future environmental regulations. INERGEN and SAPPHIRE systems are part of the complete ANSUL clean-agent portfolio. Find out for yourself how ANSUL products are taking fire suppression into the future. And putting your worries about protecting precious contents in the past.

www.ansulinfo.com/aprotect



by Tyco Fire Suppression & Building Products

Cutters Edge® MULTI-CUT® FIRE RESCUE SAWS

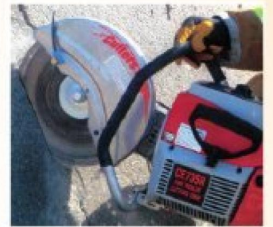
Cut Anything!

CUTTERS EDGE® gasoline powered MULTI-CUT® FIRE RESCUE SAWS
are built stronger to work harder and operate longer
in the most extreme fire and rescue conditions

CE735R MULTI-CUT® ROTARY RESCUE SAW



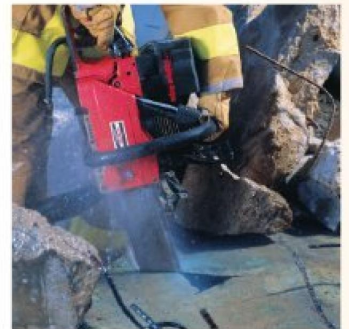
The CUTTERS EDGE® MULTI-CUT® ROTARY RESCUE SAW has a Hemispherical Head Piston and High Torque Gear Ratio for maximum power. Its BLACK DIAMOND™ Cutting Disc will **cut any material** - metal, concrete, composites, plastics, bullet-proof glass...ETC. And just one BLACK DIAMOND™ Cutting Disc can last as long as 100 other blades!



CE101C CONCRETE CUTTING CHAINSAW



This CONCRETE CUTTING CHAINSAW cuts 16-inches (40cm) of reinforced concrete. Its GCP SealPro® Diamond Chain is lubricated and cooled with water so there is no dust.



MULTI-CUT® FIRE RESCUE CHAINSAW



The MULTI-CUT® FIRE RESCUE CHAINSAW has a Guard to protect the operator and the Carbide BULLET® Chain cuts more types of materials, stays sharp and will last longer than any other chain!



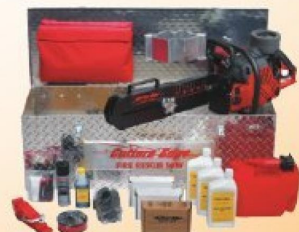
All MULTI-CUT® FIRE RESCUE SAWS are available in a custom Aluminum Box that includes all accessories, tools and spare parts to get the job done at any emergency.



MULTI-CUT® Rotary
Rescue Saw Kit



Concrete Cutting Chainsaw Kit



MULTI-CUT® Fire Rescue
Rescue Saw Kit



Speedings Safety Systems

– ensuring safety is of paramount importance

By Duncan White

Speedings Ltd

Speedings Ltd was established in 1827 on the banks of the River Wear in Sunderland, Tyne and Wear, which makes the Company the oldest manufacturing business in the City of Sunderland – a fact of which we are immensely proud.

In the early years we manufactured sails and flags for local shipyards. With the transition from sail to steam our production skills were adapted to produce ships' awnings, tarpaulins and hatch covers for the new breed of ocean trader. The advent of World War One brought additional business to the Company with an increase in marine canvas requirements for both Naval and Merchant Vessels, as well as orders for small items such as webbing belts and canvas kit bags.

The Company continued to move with the times and developed 'Safety at Sea' products – designing and making lifebuoys and the World's very first reversible lifejacket was made by Speedings Ltd. From 1957 until 1999 we were the Northeast Service Station for life rafts and rescue boats manufactured by Dunlop and Beaufort Air and Sea Safety.

During the 1980's Speedings started to manufacture various products for the local Fire Brigades

– Tyne & Wear and Durham. The demise of the North East shipbuilding industry at the end of the 1980's had a huge impact on the Company and a decision was taken to expand our involvement with the Fire Service nationally – this decision was to ensure the Company's survival and resulted in continued growth and sustainability.

We are extremely proud to say that we have designed and manufactured safety products for every Fire and Rescue Service in Great Britain and Ireland, including Airport Fire Services.

As a family owned and managed company we pride ourselves on Personal Attention, Quality Products, Reliability and Customer Service – these principals being the cornerstones to Speedings longevity and continued growth. We are continually reviewing and improving our quality control system which has seen us introduce an ISO 9001: 2000 Quality Management System by Global Certification, our third party assessors.

Speedings ability to manufacture products in both large and small quantities has been of huge benefit to our customers and has seen a continued and sustained growth in our 'Consultancy and Design' service. This bespoke process allows us to take a customer's initial thoughts and ideas and convert them into a detailed product design. The transition from design to production is seamless as we manufacture from our factory in Sunderland – enabling our Product Design Team to oversee the complete process thus ensuring the customer gets exactly what they asked for.

Speedings currently employ thirty people which include fifteen specialist 'traditional' sewing machinists. We do not operate a 'conveyor belt production line' and our machinists are not on 'piece work' – our production process sees our sewing machinists making a product from start to finish – this system of manufacture creates a more rewarding sense of achievement for the machinist.



It is certainly an advantage once you start to consider the quality aspect, as items can be directly related to a single person.

Regular consultation with Fire and Rescue Services, in the UK, Europe, America and Australia has ensured that Speedings remain at the forefront of the design and manufacture of innovative safety systems for use in the Emergency Services and Industry.

Our membership of FIRESA (the Fire and Rescue Suppliers Association) ensures we are continually kept up to date on developments in the Industry (Firebuy, ICP etc) – we have recently been awarded approved supplier status by Firebuy to supply rescue equipment as part of the National Framework Agreement.

**We are extremely proud to say
that we have designed and
manufactured safety products
for every Fire and Rescue
Service in Great Britain and
Ireland, including Airport
Fire Services.**

Our ability to source the best materials and manufacture to the highest quality has seen the Company achieving some impressive results:

- World's first reversible life jacket
- World's first re-usable steering wheel Airbag Restraint System
- 'Kevlar Lined' Sharp End Protection System (used by over 80% of UK F&RS)
- UK's largest manufacturer of Breathing Apparatus Cylinder Covers
- UK's first dedicated BSEN471 Class 3 RTC Jacket
- High Visibility clothing designed specifically for the Emergency Services
- Incident Command Systems and Identification Tabards (we have recently equipped the whole of Ireland with these systems)

A far from exhaustive list but a flavour of what Speedings Ltd are all about – a proud family owned and managed Company that enjoys working with, and for, its Customers to ensure that Customer Satisfaction is achieved 100% of the time.

Super Vac SVU Blows Up a 425,000 cmh Windstorm!

The Super Vac SVU is useful in situations where a district includes large retail outlets, warehouses, public sites, tunnels, or airports. It can easily mount on trailers, skids, or trucks. Optional features include, lift, tilt, rotation, water misting and lighting. Contact your dealer for more details on ...

**"The Most Powerful
PPV Available"**



Super Vacuum Manufacturing Co., Inc. • P.O. Box 87 • Loveland, CO 80539 USA



www.supervac.com

Tel: +970 667 5146

Sharp End Protection

Speedings of Sunderland, UK manufacture and supply Kevlar Lined Sharp End Protection Systems to over 85% of the UK fire and rescue services. The company has been working closely with the emergency services over the last decade to develop safety products that meet the needs of emergency service personnel when working at Road Traffic Collisions or other incidents involving entrapments.

The system utilises Kevlar technology to provide maximum protection for the rescuers and the casualty during an incident. The Kevlar ensures that the risk of an injury being received is minimised to an acceptable level, should anyone come into contact or fall against the cut metal. The outer lining of the products is made of highly visible, orange or yellow material, which conforms to EN 471 (European Standard for Conspicuity) and is coated to provide resistance to body fluids. The products can be washed in a domestic washing machine that ensures that they can be properly cleaned and put back in service in the shortest possible time.

The current World Champions (Germany) Royal Berkshire Fire and Rescue Service and UK (Glasgow) Extrication Champions Northumberland Fire and Rescue Service have been using Speedings products for some time. Royal Berkshire team captain Paul Maynard said;

'As World Extrication Champions we recognise that the safety of rescue teams and casualty is paramount – that's why we use Speedings Kevlar Lined Sharp End Protection both in competitions and at every RTC we attend – it's simply the best. The customer service we receive from Speedings is second to none'

Following the phenomenal success in the UK the products were launched into the USA at FDIC. 'The response from the show was astounding; the booth was constantly swamped with firefighters interested in the products. It was quite remarkable the interest received from the firefighters visiting the show' commented Rob Hammal, Speedings Managing Director.

The decision to launch the product into the USA was taken following the reaction to the products received from an American Chief visiting a UK fire show. 'Having been introduced to the Speedings Kevlar Lined Sharp End Protection System, I was able to recognise the quality, and realise the protection that it gives firefighters – I was the first Chief of Department to buy the product, but I'm sure I won't be the last!' said William Peterson – Chief of department (Retired), Plano Fire Department, Texas.



Following interest from around the UK and Europe, Speedings are currently working with Urban Search and Rescue (USAR) Teams to produce a series of protective covers for the protection of crews against reinforcing bars exposed and cut during search and rescue operations.

Hi Visibility Clothing

Speedings also produce a range of High Visibility Clothing, which conform fully to the requirements of BSEN471 Class 3 (Hi Conspicuity) which has been designed and manufactured specifically for use by the Emergency Services. Having spent time conducting extensive research into the varying roles undertaken by the modern day Emergency Services we identified that there was a need for a range of products and that one product simply couldn't fit all scenarios. These products have been designed and manufactured taking into account the following legal and moral obligations;

Dr Sthamer – Hamburg Provides a full range of ICAO Certified Foams

FOAM FIGHTS FIRE

Proven Reliability.

24/7 Emergency Supplies From Stock

Synthetic Foams

- Moussol APS
- Moussol FF NEW!
- Sthamex AFFF
- Sthamex
- Sthamex class A

Protein Foams

- Fluor-Foamousse
- Foamousse FFFP
- Foamousse OMEGA
- Foamousse

Ready To Use Foams

- Fettec
- Mousseal-C
- Mousseal-CF
- Mousseal-ATC

Training Foams

**24/7
EMERGENCY
SUPPLIES**
+49 40 736 16 80

We offer a comprehensive range of high performance and environmentally friendly foams.

Head Office and Factory Hamburg
 Liebigstrasse 5 · D-22113 Hamburg
 Phone +49 40 736168-0
 Telefax +49 40 736168-60
 E-Mail: info@sthamer.com · www.sthamer.com

International Sales Contact
 Mr. Jan Knappert
 Phone +44 (0) 7795 101770
 E-mail: jknappert@sthamer.com



- The New Roads and Street Works Act 1991
- Safety at Street Works and Road Works – A Code of Practice
- Code of Practice for the Coordination of Street Works and for Works for Road Purposes and related matters
- Dear Chief Officer Letter 6/2001
- Dear Chief Officer Letter 2/2002

Following extensive research and testing carried out by the Fire Research and Development Group (FRDG) into the Physiological effects of heat on Firefighters, evidence was gathered which identified that a Firefighter wearing protective clothing manufactured from 'non-breathable' materials was at severe risk from heat related conditions due to the inability for the body to release heat and cool down. The report concluded that Personal Protective Clothing should, where possible, be constructed of materials that were able to 'breathe' and release this built up heat.

of 'High Visibility' clothing using these materials.

The requirement for Emergency Service personnel to wear High Visibility Clothing at the scene of Road Traffic Collisions (RTC) and other Medical Emergencies was also a consideration that we have factored into the design of our jackets. The presence of blood and other body fluids means that there is a high probability of the Firefighter coming into contact with this and the likelihood of them getting the jacket contaminated is also high. Speedings jackets are designed and certified to be machine washable at 60 degrees Celsius for twenty-five washes.

The range of Speedings 'High Visibility' clothing includes the following products:

- Class 3 RTC Jacket
- Class 3 Long Sleeved Surcoat
- Class 3 Half Sleeved Surcoat
- Class 3 Long Sleeved Surcoats – with Incident Command System Role Identification

Following extensive research and testing carried out by the Fire Research and Development Group (FRDG) into the Physiological effects of heat on Firefighters, evidence was gathered which identified that a Firefighter wearing protective clothing manufactured from 'non-breathable' materials was at severe risk from heat related conditions due to the inability for the body to release heat and cool down.

An incident occurred in May 2000 where a gas pipeline exploded, the Health and Safety Executive (HSE) – Hazardous Installations Directorate conducted an investigation. Part of this investigation looked at whether the buildup of static electricity on the high visibility clothing, being worn by the maintenance crews, could have been the ignition source responsible for the explosion and subsequent fire. The report concluded that the cause of the explosion was inconclusive although the buildup of static electricity on the high visibility clothing could not be dismissed as the ignition source.

Following this FRDG research and the HSE investigation report Speedings sourced a range of materials that were 'Breathable', 'Anti-static' and conform to the requirements of BSEN 531 for Flame Retardancy and commenced the production

It must be borne in mind that a High Visibility Jacket is an essential part of a Firefighters PPE and it should be inspected, with the results recorded, on a regular basis to ensure that it is still 'fit for purpose'. The BSEN471 certification for 'high conspicuity' is only valid if the jacket is clean – failure to maintain the jacket in a clean condition, free from defect will render the certification invalid and will therefore place a huge risk on the organisation/individual wearer.

The Speedings range of High Visibility Clothing are designed and manufactured in the UK by our team of highly skilled machinists. This means that a customer can have a jacket that is 'unique' to them as we are able to produce both bespoke and generic garments – all products come in a range of sizes.

APF

Please visit our website
www.speedingsltd.co.uk for
more information or call us
to discuss your requirements
on +44 (0)191 523 9933

Speedings Ltd
Unit 4, Queens Court
Business Centre
Carrmere Road
Leechmere Industrial Estate
Sunderland
Tyne and Wear SR2 4TW

The International FIRE & EMERGENCY TRAINING LEADER



TRAIN • SERVE • RESPOND

TEEX trains emergency response personnel from more than 45 countries each year. Each course can be tailored to meet your exact needs in a variety of areas.

- Municipal / Industrial Firefighting
- Industrial Emergency Response Specialist
- Hazardous Materials Response
- Search & Rescue / USAR
- Aircraft Rescue & Firefighting
- Fire & EMS Leadership
- Fire Officer / Instructor
- Marine - Shipboard Firefighting
- Oil Spill Response
- Emergency Medical Service
- Emergency Management / NIMS
- Incident Command
- LNG Emergency Response
- Assessment / Technical Assistance

Schedule these or any of our 130+ courses today.
www.teex.org/fire • 1.866.878.8900



TEXAS ENGINEERING EXTENSION SERVICE
A Member of The Texas A&M University System
201 Texas • College Station, TX 77843-7846



Rescue equipment

CORE™ Technology
Quicker, safer, easier



one hose, one coupler



increased safety

Our CORE™ system offers many advantages, including:

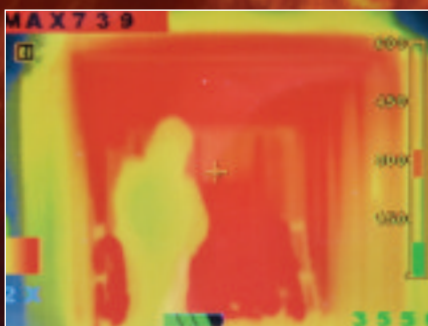
- Increased safety - high-pressure line inside & protected by low-pressure line
- Tool change under flow
- Para-aramid reinforced hoses - no kinking, no pinholes
- Flat face auto-lock couplers - no dirt inside - couple & lock with just one push

www.holmatro.com

holmatro
mastering power

Don't get left in the dark

See the light



The new Eagle 320 Thermal Imaging Camera features a large 10 cm screen with up to 4 x zoom and a variety of temperature indicators to ensure you have the information you need

- Maximum Temperature Indicator
- Large LCD Display with 4x Zoom
- Over 4.5 hour Battery Life
- Ergonomic Multi Positioned Handle

EAGLE™ 320

For further information call Customer Services on: +44 (0) 1695 711711
quoting reference FT0309 or email scott.sales.uk@tycoint.com



SCOTT®
HEALTH & SAFETY

www.scotthealthsafety.com

A world force in fire service development

If someone were to mention to you there is a College dedicated to worldwide fire service development, that has a 30-year pedigree, has trained over 300,000 fire personnel globally to date, is set in a 550 acre site and almost certainly offers the most extensive range of fire training and consulting products available – who would you say it was? You’ve probably guessed already – The Fire Service College.

Craig Kelsall

Station Manager,
Specialist Operations
The Fire Service College

Over its history the College, based at Moreton-in-Marsh, Gloucestershire in the UK, has been at the forefront of innovation – whether it is in specialist operations, specialist rescue, the latest thinking on fire engineering and safety, or the continual updating of its rigs and courses designed to develop operational command techniques and bring about the effective management of incidents at all levels. Today, the College even works as a consultant, advising clients on how to improve the performance of their fire service or fire operation.

Whether you work in one of the many fire services spread across the globe, hold fire responsibilities in business and industry (petrochemical, hazardous goods, manufacturing etc), or have an emergency management or fire safety role, the College can design bespoke programmes to develop you and your organisation. It can even bring its expertise to you, outside the UK, in the form of outreach programmes, covering all areas of its operation. The College sums up its credentials simply – Unrivalled Experience, Unequalled Expertise.

Tony Barnett, Director of Business Development, Sales & Marketing at the College, gives his view on what sets us apart: “The College has the unique ability to advise on most, if not all aspects of the

fire environment and the effective operation of fire organisations. In addition to providing cutting-edge training, the College can also benchmark organisations against internationally-recognised standards, design and recommend strategic improvement plans and even manage the implementation of the resultant change programmes. We are an organisation geared to driving operational improvement for all our clients.”

Unparalleled resources

Just imagine a day-to-day incident that needs sound theory and plenty of practice to get your response right each and every time. Or imagine the unthinkable, that might never happen but could, a major incident where it is essential to scope out incident plans, train people in their implementation, and practise to get it right.

Imagine what could be achieved if you had all of this at your disposal:

- Simulation Suites
- Incident Command Complex
- M96 Motorway Training Area
- Oil Rig Simulator
- Large Tank Simulator
- Aircraft Simulators
- High Rise Simulator
- Helicopter Simulators

The College can design bespoke programmes to develop you and your organisation. It can even bring its expertise to you, outside the UK, in the form of outreach programmes, covering all areas of its operation.

- Indoor Training Rigs
- Breathing Apparatus Training Complex
- Rail Accident Complex
- Industrial Factory Training Complex
- Shopping Complex
- Road Traffic Collision Complex
- Fire Behaviour
- Ship and Marine Training Area
- Fire Investigation
- Urban Search & Rescue Training Complex

These resources, accompanied by the College's knowledge of best operating practice and its virtual reality simulator, can be combined to design a programme specific to each client and their own individual requirements.

John Lowe, Head of International & Wider Markets says: "We can replicate almost anything. Our scenarios are very realistic, yet there's a high degree of safety and control. We have about six buildings that we can set fire to and a couple we can smoke up. There are aircraft that we can set up for various kinds of fire and rescue simulations, as well as an oil rig and a ship, which is made out of concrete so we're never going to sink it! We have a motorway here, which we can set up with cars and lorries, a railway

subject areas on offer:

- Incident Command and Management
- Rescue
- Urban Search and Rescue (USAR)
- Multi-agency Training
- Hazardous Materials
- Industrial Firefighting
- Aircraft Rescue and Firefighting
- Marine Firefighting
- Off-shore Firefighting
- Fire Safety and Engineering
- Firefighter Development Training
- Instructor Courses
- Specialty Courses and Customised
- Training Programmes

Responding to new threats

Since the events of September 11th 2001, fire services, civil defence forces and fire organisations across the world are having to re-examine the traditional ways of doing things to see how they match up to the new demands placed on them by a changing world. Often this requires reviewing how effective they are at command and control, operational mobilisation and resource management, together with their operations that prevent

To match the extent of the College's practical resources, it also provides a wealth of expertise and knowledge, with a tutor base that has an insight into the practical application of both general and essential concepts down to individual specialised areas.

track and level crossing, a roundabout, plus perimeter and access roads that we also use for training."

Unequalled expertise

To match the extent of the College's practical resources, it also provides a wealth of expertise and knowledge, with a tutor base that has an insight into the practical application of both general and essential concepts down to individual specialised areas.

Take, for example, fire engineering and fire safety where specialisms are covered in great depth, including fire investigation, industrial and domestic fire protection systems, high rise building risks, building regulations and even smoke control. These as well as the more general foundations of fire safety, fire risk assessment and fire legislation, are blended together for each client. So whether it is a requirement for training in Malaysia, Hong Kong, Thailand or Taiwan for experienced or inexperienced practitioners, with general or specific needs, a programme is tailored to meet all these requirements.

The practical emphasis of the College's approach to learning and development comes with its aim to ensure that the training provided can be immediately applied once back in the workplace. This is because it is delivered by leading professionals drawn from fire and rescue services throughout the UK, and guarantees training is as up-to-date as it is hands-on, applying equally to all

fire and support core activities (procurement, finance and IT etc). This is a complex and time consuming task, which is the reason why the College has recently been asked to undertake this type of study for several clients.

Global reach

A significant proportion of the College's activity is taken directly to the client throughout the UK and overseas with the outreach programme. The Fire Service College visits clients on their own sites, using the equipment they use every day, working in their local environment. Exercises, case studies and simulations can be tailored to specific practices, with each programme designed uniquely to the client's organisation.

The popularity of this form of training delivery has resulted in the College building an international customer base that spans the Middle East, Europe North Africa, South East Asia and the Caribbean. Equally there is still a demand for international customers to visit Moreton-in-Marsh and take advantage of its unique facilities, learning alongside the College's UK delegates.

Regardless of whether training is delivered via outreach or through clients coming to the College, we are keen to keep in touch offering ongoing help and support. Training and consultancy is a two-way street – whether it's a new development, a fresh insight or an operational improvement, we are keen to promote the sharing of best practice and the continuous raising of standards for the College and its clients. **APF**

The Fire Service College
Moreton-in-Marsh
Gloucestershire
GL56 0RH UK
Tel: +44 (0)1608 650831
Fax: +44 (0)1608 651788
Email: enquiries@fireservicecollege.ac.uk
Website: www.fireservicecollege.ac.uk

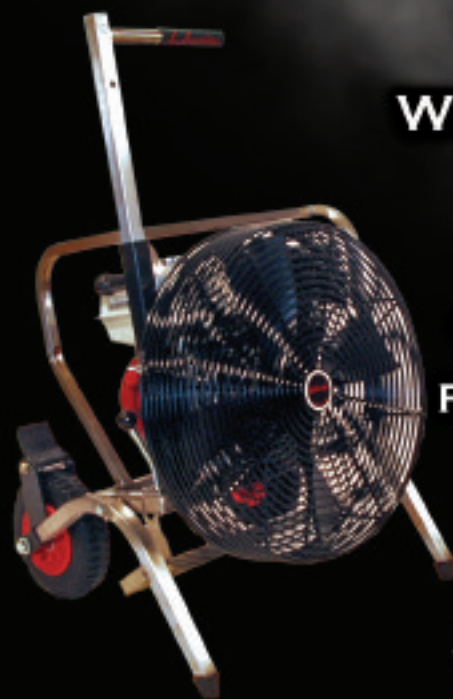
UNIFIRE

MANUFACTURERS OF HIGH PERFORMANCE EQUIPMENT



WHEN TIME MATTERS.
WHEN LIVES ARE AT STAKE.
WHEN SAFETY IS KEY.

CHOOSE THE BRAND
THE TOP TRAINING AND
RESCUE TEAMS CHOOSE.



UNIVENT BRAND SAWS ARE A DIVISION OF UNIFIRE

1-800-745-3282 • WWW.UNIFIREUSA.COM

Distributor and Representative Offices

ANGUS FIRE

AUSTRALIA

KIDDE AUSTRALIA PTY LTD

A1 Janine St, Scoresby Industrial Park
Scoresby, Victoria 3179
Tel: +61 3 9765 3850 Fax: +61 3 9765 3801
Email: info@kidde.com.au Website: www.kidde.com.au

Representative Office

BANGLADESH

SAM AGENCIES LTD

5/5, Block A, 1st Floor, Igbal Road
Mohammadpur, Dhaka-1207
Tel: +880 2 911 0264 Fax: +880 2 912 0241
Email: info@sam-sperry.com
Website: www.sam-sperry.com

Dealer/Distributor

BRUNEI DARUSSALAM

YEN LEE FIREWELD PTE LTD

18 Penhas Road, Singapore 208182
Tel: +65 6290 9890 Fax: +65 6290 1444
Email: yenlee@fireweld.com.sg
Website: www.fireweld.com.sg

Dealer/Distributor

CHINA

KIDDE CHINA

Room 805, Guardforce Centre, 3 Hok Yuen Street East
Hung Hom, Kowloon, Hong Kong
Tel: +852 2195 3688 Fax: +852 2370 8381
Email: general@kidde-china.com

Representative Office

HONG KONG

CENTURION FIRE FIGHTING CO

Room A, 13th Floor, Go-Up Commercial Building
998, Canton Road, Mongkok, Kowloon
Contact: Johnny Yuen (Manager)
Tel: (00 852) 2332 7071/2332 9570
Fax: (00 852) 2332 6145
Email: johnny@centurionfire.com.hk

Dealer/Distributor

INDIA

KIDDE INDIA LIMITED

EL 205, TTC Industrial Area, Mahape
Navi Mumbai, 400 710, India
Tel: +91 22 27618555 Fax: +91 22 27618444
Email: sales@kiddeindia.com
Website: www.kiddeindia.com

Representative Office

INDONESIA

PT RANTAI LAUT

Jl Kemang Raya No. 11, Jakarta Selatan
Contact: Jimmy Singh
Tel: (00 62) 21 717 90122 Fax: (00 62) 21 717 90607
Email: jimmy@rantai-laut.com
Website: www.rantai-laut.com

Dealer/Distributor

JAPAN

OWEN LTD

2-5-20 Gokou-Nishi, Matsudo-Shi Chiba T270-2218
Contact: Mr Masao Oyake (Managing Director)
Tel: (00 81) 47 389 5510 Fax: (00 81) 47 385 1763
Email: owen@nsu.biglobe.ne.jp

Dealer/Distributor

KAZAKHSTAN

FIRECENTER TOR LTD

13 Kunaev Street, 480016 Almaty
Tel: +7 3272 790055/790627 Fax: +7 3272 507187
Email: tor@firetor.com

Dealer/Distributor

KOREA (SOUTH)

INDECO CORPORATION

B-704 Daelim Acrotower, 1591 Kwangyang-Dong
Donan-Ku, Anyang-Si, Kyunggi-Do
Tel: +82 31 4789 150 Fax: +82 31 4789 154
Email: thomas@esafety.co.kr

Dealer/Distributor

MACAU

CENTURION FIRE FIGHTING CO

Room A, 13th Floor, Go-Up Commercial Building
998, Canton Road, Mongkok, Kowloon
Contact: Johnny Yuen (Manager)
Tel: (00 852) 2332 7071 Fax: (00 852) 2332 6145
Email: johnny@centurionfire.com.hk

Dealer/Distributor

MALAYSIA (EAST)

KINSAJASA SDN BHD

1st Floor, 2298, Pujut 5 Shoplot, 98000 Miri, Sarawak
Tel: +60 85 665802/660423 Fax: +60 85 655803/655402
Email: kinsar@tm.net.my

Dealer/Distributor

MALAYSIA (WEST)

DASAPREM (M) SDN BHD

10 & 12 Jalan Muara 8/9
40000 Shah Alam, Selangor, Darul Ehsan
Tel: +60 3 55105071/55100957 Fax: +60 3 55104486
Email: dasaprem@yahoo.com

Dealer/Distributor

RANTAU IDAMAN SDN BHD

10-8-3, 8th Floor, Queen's Avenue
Block 10, Jalan Shelly, 55100 Kuala Lumpur
Tel: +60 3 9206 6333 Fax: +60 3 9206 6222
Email: bruce@tsigm.com Website: www.tsigm.com

Dealer/Distributor

MALDIVES

ANTIFIRE CO PVT LTD

PO Box 247, G. Graces, Nirolhu Magu, Male
Tel: +960 310322 Fax: +960 310323
Email: antifire@dhivehinet.net.my
Website: www.antifiremaldives.com

Dealer/Distributor

NEPAL

MOTHERLAND TRADERS

PO Box 938, Bhimsengola, Baneshwar, Kathmandu
Tel: +977 1 480534 Fax: +977 1 474229
Email: mlt@mos.com.np

Dealer/Distributor

PAKISTAN

FIRESTOP AIDS PVT LTD

6/8 First Floor, Dinar Chambers, PO Box 5786
West Wharf Road, Karachi 74000
Tel: +92 21 231 3065 Fax: +92 21 231 0457
Email: info@firestopaids.com
Website: www.firestopaids.com

Dealer/Distributor

PHILIPPINES

ALARM SYSTEMS CORP

Unit 3205, Summit-1, Office Tower
530 Shaw Blvd, Mandaluyong City
Contact: Allen Lim
Tel: +632 532 0556 Fax: +632 533 6476
Email: mail@alarmsystems.ph
Website: www.alarmsystems.ph

Dealer/Distributor

SINGAPORE

KIDDE ASIA PTE LTD

70 Bendemeer Road, #02-02
Luzerne Building, Singapore 339940
Tel: +65 6424 7979 Fax: +65 6424 7978
Email: kenneth.loh@kidde-asia.com.sg
Website: www.kiddeasia.com

Representative Office

YEN LEE FIREWELD PTE LTD

18 Penhas Road, Singapore 208182
Tel: +65 6290 9890 Fax: +65 6296 1444
Email: yenlee@fireweld.com.sg
Website: www.fireweld.com.sg

Dealer/Distributor

SRI LANKA

CBE COMMUNICATIONS & BUSINESS EQUIPMENT

99/6 Rosmead Place, Colombo 7
Tel: +94 112 699 699 Fax: +94 112 695 047
Email: cbe@cbe.lk Website: www.cbe.lk

Dealer/Distributor

TAIWAN

SENSOR LTD

No. 8-1, Rueiguang Road, Neihu Chiu, Taipei, Taiwan 114
Contact: Alex Jeng
Tel: (00 886) 2 8792 9881 Fax: (00 886) 2 8792 9885
Email: sensor.fire@msa.hinet.net
Website: www.sensorfire.com

Dealer/Distributor

THAILAND

KAMPUWAT CO LTD

267/308-309 Sukhumvit Road
T. Maptaphut A. Muang, Rayong 21150
Tel: +66 38608718 Fax: +66 38608720
Email: info@kampuwat.com

Dealer/Distributor

VIETNAM

KIDDE ASIA PTE LTD

70 Bendemeer Road, #02-02, Luzerne Building
Singapore 339940
Tel: +65 6424 7979 Fax: +65 6424 7978
Email: kenneth.loh@kidde-asia.com.sg
Website: www.kiddeasia.com

Representative Office

BAUER COMPRESSORS

BANGLADESH

MOUNT EVEREST ENGINEERING COMPANY

A-103 Gokul Arcade Sahar Road
Vile Parle (East), Mumbai 400 057, India
Contact: Mr Hemant Gupta
Tel: +91 22 2820 2558 Fax: +91 22 2820 5792
Email: meecbom@vsnl.net

Dealer/Distributor

BRUNEI

BAUER COMPRESSORS ASIA PTE LTD

2 Penjuru Place, #01-05 Penjuru Tech Hub
Singapore 608783
Contact: Mr Stephen Hines (Managing Director)
Tel: +65 6271 6271 Fax: +65 6272 3345
Email: info@bauer-compressors.com.sg

Representative Office

FRENCH POLYNESIA

TAHITI SPORT

PO Box 62, 98713 Papeete, Tahiti, French Polynesia
Contact: Mr Thierry Alberola
Tel: +689 505959 Fax: +689 421775
Email: emonet@nautisport.pf

Dealer/Distributor

INDONESIA

MARINE & INDUSTRIAL COMPRESSORS

304 Thomson Road, Singapore 307654
Contact: Mr Sng
Tel: +65 6250 6018 Fax: +65 6253 8443
Email: masmarin@singnet.com.sg

Dealer/Distributor

KOREA

TECKO CO LTD

2F, SK@Technopark, Mega-Dong
190-1 Sangdaewon-Dong, Sungnam-City
Kyungki-Do 462 807, Korea
Contact: Mr K Y Lee
Tel: +82 31 776 2442 Fax: +82 31 776 2444
Email: kylee@tecko.co.kr

Dealer/Distributor

MALAYSIA

SK CRYOGENICS SDN BHD

No. 16 Jalan Anngirik Mokara 31/52, Section 31, Kota
Kemuning, 40460 Shah Alam, Selangor, Malaysia
Contact: Mr Steve Kellett
Tel: +60 3 5122 4269 Fax: +60 3 5122 4235
Email: skcryo@gmail.com

Dealer/Distributor

PAKISTAN

ALPINE INDUSTRIALCON PVT LTD

305/2 G.T. Road, Baghbanpura, Lahore, Pakistan
Contact: Mr Kashif Ahmad
Tel: +92 42 685 2313 Fax: +92 42 655 3674
Email: alpinelahore@hotmail.com

Dealer/Distributor

PHILIPPINES

CEBU ERNBRI IMPORT INC/

AQUAVENTURE WHITETIP DIVE SUPPLY

Ermita Office: Unit 101 Joncor II Bldg, #1362 A. Mabini
Street, Ermita Manila Philippines 1000, Philippines
Contact: Mr Brian L Giles
Tel: +632 521 0433 Fax: +632 522 1165
Email: brian@aquaventurewhitetip.com

Dealer/Distributor

SINGAPORE

BAUER COMPRESSORS ASIA PTE LTD

2 Penjuru Place, #01-05 Penjuru Tech Hub
Singapore 608783
Contact: Mr Stephen Hines (Managing Director)
Tel: +65 6271 6271 Fax: +65 6272 3345
Email: info@bauer-compressors.com.sg

Representative Office

MARINE & INDUSTRIAL COMPRESSORS

304 Thomson Road, Singapore 307654
 Contact: Mr C H Sng
 Tel: +65 6250 6018 Fax: +65 6253 8443
 Email: masmarin@singnet.com.sg

Dealer/Distributor**SRI LANKA****HALCHEM LANKA PVT LTD**

107 Temple Road, Colombo-10, Sri Lanka
 Contact: Cyril Halloluwa
 Tel: +94 11 584 3213/+94 11 584 3219
 Fax: +94 11 267 4615 Email: halloluwa@sltnet.lk

Dealer/Distributor**TAIWAN****MING SHEN ENTERPRISE CO LTD**

5, PaShih 1 Street, DanShui Town
 Taipei, Taiwan 25170, Taiwan
 Contact: Mr Tom Tseng
 Tel: +886 (2) 2809 5789 Fax: +886 (2) 2809 6189
 Email: tom@3arrow.com.tw

Dealer/Distributor**THAILAND****INTERSON ENGINEERING & TECHNOLOGY PTE LTD**

7/288 Moo 6, Chaengwattana Road
 Bhanmai, Pakkred, Nonthaburi 11120
 Thailand
 Contact: Mr Nathanan
 Tel: +66 2 9808754 Fax: +66 2 9808753
 Email: nathanan@intersol.th.com

Dealer/Distributor**VIETNAM****FRANCO-PACIFIC VIETNAM CO LTD**

55 Ho Hao Hon Street
 District 1, Ho Chi Minh City, Vietnam
 Contact: Mr Colm Minogue
 Tel: +84 8 836 0257 Fax: +84 8 836 1387
 Email: colminogue@francopacific.com

Dealer/Distributor**MEKONG SCUBA SUPPLY LTD**

2/14 Cao Thang Street
 District 3, Ho Chi Minh City, Vietnam
 Contact: Mr Mike Doyle
 Tel: +848 832 8952 Fax: +848 832 8650
 Email: mikedoyle44@hotmail.com

Dealer/Distributor**BLACK DIAMOND****CHINA****SHANGHAI ZANRAY INDUSTRIAL CO LTD**

4F, No.88 Jianyun RoadZhoupu Town
 Zhoupu Town, Nanhui District
 Shanghai 201318, China
 Contact: Mr Andy Yu
 Tel: +86 2151388798 Email: info@zanray.cn

TAIWAN**JIUH WAN ENTERPRISE CO LTD**

1F, No.335, Sec.1, Hsi An Rd.
 Pei Mei Terrace
 Pu Li Chen, Nan Tou Hsien 555, Taiwan
 Tel: +886 492899101
 Email: jiu.h.wan@msa.hinet.net

THAILAND**GLOFAB CO LTD**

46/20 MOO9, Ramkhamhaeng Road
 Sapan Soong, Bangkok 10240, Thailand
 Contact: Mr Ramesh Tiwari
 Tel: +66 29275911 Email: ratiwari@ksc.th.com

REST OF ASIA**BLACK DIAMOND GROUP INC**

c/o AMG International Limited
 Room 1603 Wing Kwok Centre
 182 Woosung Street, Jordan
 Kowloon, Hong Kong
 Contact: Mr Alan Lunder
 Tel: +1 (617) 527-3312 Email: alunder@bdfire.com

BRISTOL UNIFORMS**AUSTRALIA****PACIFIC HELMETS AUSTRALIA PTY LTD**

Abn 60 088 233 783, Unit 1/28 Burnside Road
 Hallmarc Business Park
 Yatala Qld 4207
 Contact: Keith Ward
 Tel: 1300 73 1800 Fax: 07 3441 7177
 Email: keith@pacifichelmetsaust.com
 Website: www.pacifichelmetsaust.com

Dealer/Distributor**PAC FIRE AUSTRALIA**

Unit 1/28 Burnside Road, Hallmarc Business Park
 Yatala Qld 4207, Australia
 Tel: +1 300 73 1800 Fax: +07 3441 7177
 Email: sales@pacfire.com.au

Dealer/Distributor**BANGLADESH****MANIK BROTHERS**

Hai Mansion (3rd Floor), 9/3 Motijheel Circular Road
 Dhaka - 1000, Bangladesh
 Contact: Mr A K Bhowmick
 Tel: +880 2 7100 589 Fax: +880 2 7100 386
 Email: manikbrs@1postbox.com

Dealer/Distributor**BRUNEI****DASAPREM (M) SDN BHD**

10 & 12 Jalan Muara 8/9, 40000 Shah Alam
 Selangor, Darul Ehsan, Malaysia
 Contact: Mr Prem R Murthy
 Tel: +603 550 9060 Fax: +603 550 4486
 Email: dasaprem@yahoo.com
 Website: www.dasaprem.com

Dealer/Distributor**YEN LEE FIREWELD PTE LTD**

18 Penhas Road, 208182, Singapore
 Tel: +65 62909890 Fax: +65 62961444
 Email: jeffrey@fireweld.com.sg

Dealer/Distributor**CHINA****SHENZHEN RUFN INDUSTRIAL CO LTD**

RM-701, 7/F Leaser Tower
 1st Fuhua Rd, Shenzhen, China
 Contact: Amy Jin
 Tel: +86 755 8399 9581 Fax: +86 755 8399 9548
 Email: wj@ruffn88.com

Dealer/Distributor**FIJI****PHILLIPS & SMITH LTD**

10 Akatea Road, Glendene
 Auckland, New Zealand
 Contact: Mr S Hampton
 Tel: +649 818 8048 Fax: +649 818 4484
 Email: stuart@firemaster.co.nz
 Website: www.firemaster.co.nz

Dealer/Distributor**HONG KONG****CHUBB HONG KONG LTD**

3 Hok Yuen Street East
 Hung Hom, Kowloon, Hong Kong
 Contact: Mr Simon Tsang
 Tel: +852 2746 9628 Fax: +852 2785 0849
 Email: simonsft.chubb.com.hk
 Website: www.chubb.com.hk

Dealer/Distributor**INDIA****FOREMOST MARKETING PVT LTD**

M-1 Green Park Extn, New Delhi 110016, India
 Contact: Mr Vinay Khanna
 Tel: +91 11 261 969 82 Fax: +91 11 261 669 61
 Email: foremost@vsnl.net
 Website: www.foremostsafety.com

Dealer/Distributor**JAPAN****ABLE-YAMAUCHI CO LTD**

Yokohama Nishiguchi, SIA Building
 10-36 Kitasaiai
 2-Chome Nishi-Ku
 Yokohama 220-0004, Japan
 Contact: S. Yamauchi
 Tel: +81 45 312 1130 Fax: +81 45 312 1350
 Email: emiko@able-yamauchi.co.jp
 Website: www.able-yamauchi.co.jp

Dealer/Distributor**MALAYSIA****DASAPREM (M) SDN BHD**

10 & 12 Jalan Muara 8/9
 40000 Shah Alam
 Selangor Darul Ehsan
 Malaysia
 Contact: Mr Prem R Murthy
 Tel: +603 550 9060 Fax: +603 550 4486
 Email: dasaprem@yahoo.com
 Website: www.dasaprem.com

Dealer/Distributor**EAST MALAYSIA****YEN LEE FIREWELD PTE LTD**

18 Penhas Road, 208182, Singapore
 Tel: +65 62909890 Fax: +65 62961444
 Email: jeffrey@fireweld.com.sg

Dealer/Distributor**NEW ZEALAND****PHILLIPS & SMITH LTD**

10 Akatea Road, Glendene, Auckland, New Zealand
 Contact: Mr S Hampton
 Tel: +649 818 8048 Fax: +649 818 4484
 Email: stuart@firemaster.co.nz
 Website: www.firemaster.co.nz

Dealer/Distributor**SINGAPORE****YEN LEE FIREWELD PTE LTD**

18 Penhas Road, 208182, Singapore
 Tel: +65 62909890 Fax: +65 62961444
 Email: jeffrey@fireweld.com.sg
 Website: www.fireweld.com.sg

Dealer/Distributor**SRI LANKA****FIRETECH (PRIVATE) LTD**

34 Walter Guneseckara Mawatha, Nawala, Sri Lanka
 Contact: Leon Daniels Tel: +94 11 4410588
 Fax: +94 11 2806666 Email: firetech@pan.lk

Dealer/Distributor**TAIWAN****SHENG-TAI FIRE PROTECTION INDUSTRIAL CO LTD**

No 222-2 Sec2, Cheng Tai Rd, Wu-Ku Shiang
 Taipei, Hsien, Taiwan
 Contact: Liu Yuan Hung
 Tel: +886 22292 1751 Fax: +886 22291 1984
 Email: sato@mail.mold.net.tw
 Website: www.shengtai.com.tw

Dealer/Distributor**VIETNAM****TRAN VU TRADING CO LTD**

61 Ban Co Street, District 3, Hochiminh City, Viet Nam
 Contact: Tran Vu Hong
 Tel: +84 88325101 Fax: +84 88309586
 Email: sales@tranvufire.com
 Website: www.tranvufire.com

Dealer/Distributor**COLTRI ASIA PACIFIC****CHINA****SHANGHAI PANNY TRADING CO.,LTD**

3F, #17-2 No.230, Xijinqiao Road, Pudong New Area,
 Shanghai China 201206
 Tel: +86-21-50321602, +86-21-50321603
 Fax: +86-21-50321782 Email: coltri-sub@163.com
 Website: www.coltrisub-china.com

Dealer/Distributor**HONG KONG****WAH SHING DIVING EQUIPMENT COMPANY**

2 B-C Ground Floor, Larch Street,
 Tai Kok Tsui, Kowloon, Hong Kong
 Tel: (852) 23914084, 2391 3997
 Fax: (852) 2789 4638 Email: info@wahshingdiving.com

Dealer/Distributor**INDONESIA****LAUTAN MAS**

Jalan Toko Tiga No.24, Jakarta-barat 11230
 Indonesia Telephone: 021-690-13333
 Email: Office@LautanMas.com

Dealer/Distributor**INDIA AND INDIAN CONTINENT****JYOTECH ENGG & MKTG CONSULTANTS**

India, Bangladesh, Bhutan & Pakistan
 H-49 A, Kalkaji, New Delhi 110019, India
 Tel: +91-11-26371262 & 63 Fax: +91-11-26482189
 Email: sales@jyotech.com Website: www.jyotech.com

Dealer/Distributor**KOREA****DAEWOONG SUITS CO LTD**

1614-15, Seocho-Dong, Seocho-Ku, Seoul, Korea
 Tel: 82-2-588-0970 Fax: 82-2-587-0392
 Email: mares@mares.co.kr Website: www.mares.co.kr

Dealer/Distributor**MALAYSIA****RAINBOW RUNNER S/B**

383D JLN AMPANG 50450, Kuala Lumpur, Malaysia
 Tel: 6-03-42514368 or 42515368
 Fax: 6-03-42511268 Website: www.rainbowrunner.net

Dealer/Distributor**NEW ZEALAND****AIR TECHNOLOGY LIMITED**

5/20 Constellation Drive, Mairangi Bay 0632 Auckland
 PO Box 305 065, Triton Plaza, North Shore
 Auckland, New Zealand
 Tel: +64-9-478 9995 Fax: +64-9-478 6221
 Email: sales@airtec.co.nz

Dealer/Distributor

PHILIPPINES**AQUAMUNDO SPORTS INC**

Vernida 1 Building, 120 Amorsolo St.
Legaspi Village, Makati City, Philippines
Telefax: +632-817-2782 and 813-2782
Email: info@aquamundosports.com
Website: www.aquamundosports.com

Dealer/Distributor**SINGAPORE****ALLROUND ADVANCED****TECHNOLOGIES PTE LTD (200005796C)**

105 Sims Avenue, #03-06 Chancery Lodge Complex
Singapore 387429
Tel: (65) 67492778, 67492776 Fax: (65) 67492977
Email: sales@allround.com.sg
Website: www.allround.com.sg

Dealer/Distributor**TAIWAN****QUANTA TRADE & ENGINEERING CO LTD**

8F-6, No. 16, Chang-An East Road Section 1,
Taipei city 104-42, Taiwan, R.O.C.
Tel: +886-2-8773-3037 Fax: +886-2-8773-2965

Dealer/Distributor**THAILAND****COLTRI ASIA PACIFIC CO LTD**

Free Zone at 304 Industrial Park 2
No. 94/5, Moo 3, T. Khao Hin Sorn, A. Phanomsarakarm,
Chachoengsao 24120, Thailand
Tel: + 66 38 855 103 to 5 Fax: + 66 38 855 106
Mobile: +66 81 8913937
Email: c.benelli@aerotecnicacoltriasiapacific.com
Website: www.aerotecnicacoltriasiapacific.com

Representative Office**THAILAND, LAOS CAMBODIA AND MYANMAR****SIAM DIVING ENTERPRISES ASIA
PACIFIC CO LTD**

50/10 Moo 2, Dok Mai, Prawet
10250 Suanluang Bangkok Thailand
Tel: +66(0) 2 726100 to 5 Fax: +66(0) 2 726106
Email: cc.c.benelli@aerotecnicacoltriasiapacific.com
Website: sdesystems@csloxinfo.com

Dealer/Distributor**VIETNAM****SCUBA SUPPLY VIETNAM-VO THANH
THUY**

Lo 51- Q2- Hon Ro- Phuoc Dong- Nha Trang- Khanh Hoa-
Vietnam 57000
Tel: +84 583 715 077 Fax: +84 583 715 099
Email: sales@scubavietnam.com
Website: www.scubavietnam.com

Dealer/Distributor**CUTTERS EDGE****AUSTRALIA****KDW CONSULTING LLC**

3023 Sonoma Way, Viera,
FL 32955, USA
Contact: Kenton D Warner
Tel: 321 636 4543 Fax: 928 438 6382
Email: kenwarner@att.net
Website: www.cuttersedge.com

Representative Office**CHINA****ANCOM**

Building 5, Courtyard 10 Village
Middleroad, North 3rd Ring Road
Contact: Pei Zhang
Tel: 86 10 6202 2792 Fax: 86 10 6207 7929
Email: hung.fang@utoronto.ca
Website: www.ancom.cn/www.cuttersedge.com

Dealer/Distributor**NORLAN ENTERPRISES INC**

Room 952, #218 Tang Li Road, China
Contact: Helen Wang
Tel: 86 10 8467 3721/8467 3722
Fax: 86 10 8467 3770 Email: helenwang@norlan.cn
Website: www.norlan.cn/www.cuttersedge.com

Dealer/Distributor**HONG KONG****SAFETECH LIMITED**

Block C, Unit 11 11/F
Wah Lok Industrial Center
Shan Mei Street, Fo Tan, Shatin N.T.
Hong Kong
Contact: Andy Chan
Tel: 852 2687 4083 Fax: 852 2687 2784
Email: safetech@netvigador.com
Website: www.safety.com.hk/
www.14230tradebig.com/www.cuttersedge.com

Dealer/Distributor**INDIA****ASKA EQUIPMENTS LTD**

Aska House, 193 Deepali, Deepali Chowk, Outer Ring
Road – Pitampura, New Delhi 110 034, India
Contact: Navdeep Garg
Tel: 91 11 27014416/27014417
Fax: 91 11 27014413 Email: info@askagroup.com
Website: www.askagroup.com/ www.cuttersedge.com

Dealer/Distributor**ISRAEL****OFER FIRE RESCUE & SALVAGE LTD**

Binyamina 30500, Israel
Contact: Ofer Halamish
Tel: 972 4 6288444 Fax: 972 4 6288555
Email: ofer@ofer.co.il
Website: www.ofer.co.il/www.cuttersedge.com

Dealer/Distributor**JAPAN****TEIKOKU SEN-I CO LTD**

5-13, 2 Chome, Nihonbashi, Chuo-Ku, Tokyo 103, Japan
Tel: 81-3-3281-3026 Fax: 81-3-3274-6397
Email: teisen-tyo@teisen.co.jp
Website: www.teisen.co.jp/www.cuttersedge.com

Dealer/Distributor**KOREA****KDW CONSULTING LLC**

3023 Sonoma Way, Viera, FL 32955, USA
Contact: Kenton D Warner
Tel: 321 636 4543 Fax: 928 438 6382
Email: kenwarner@att.net Website: www.cuttersedge.com

Representative Office**MALAYSIA****CITO MARKETING, SDN BHD**

No. 11, Jalan SS15/4B, Subang Jaya
47500 Petaling Jaya, Selangor, Darul Ehsan
Contact: Ahmad Nazmi Abu Raihan
Tel: +603 5631 1286 Fax: +603 5634 0583
Email: info@citogroup.co.my
nazmi@citogroup.com.my/www.cuttersedge.com

Dealer/Distributor**PHILLIPINES****KDW CONSULTING LLC**

3023 Sonoma Way, Viera, FL 32955 USA
Contact: Kenton D Warner
Tel: 321 636 4543 Fax: 928 438 6382
Email: kenwarner@att.net
Website: www.cuttersedge.com

Representative Office**SINGAPORE****KDW CONSULTING LLC**

3023 Sonoma Way, Viera, FL 32955 USA
Contact: Kenton D Warner
Tel: 321 636 4543 Fax: 928 438 6382
Email: kenwarner@att.net Website: www.cuttersedge.com

Representative Office**SOUTH KOREA****JINUTEC INTERNATIONAL DIVISION**

711 Visiontop Officetel 374-4
Won-Dong, Osan-City, South Korea
Contact: Na Hae-Yul
Tel: 82 31 375 8558 Fax: 82 31 375 4884
Email: hyna@jinutec.com
Website: www.jinutec.com/www.cuttersedge.com

Dealer/Distributor**THAILAND****KDW CONSULTING LLC**

3023 Sonoma Way, Viera, FL 32955 USA
Contact: Kenton D Warner
Tel: 321 636 4543 Fax: 928 438 6382
Email: kenwarner@att.net
Website: www.cuttersedge.com

Representative Office**DRAEGER SAFETY****AUSTRALIA****DRAEGER SAFETY PACIFIC**

Axxess Corporate Park, Unit 99, 45 Gilby Road
Mount Waverley, Victoria 3149
Tel: +61 3 9265 5000 Fax: +61 3 9265 5097
Email: customer.service@draeger.com

Representative Office**CHINA****BEIJING FORTUNE DRAEGER SAFETY
EQUIPMENT CO LTD**

Yu An Lu 22, B Area
Beijing Tianzhu Airport Industrial Zone
Shunyi District, Beijing, 101300
Tel: +86 10 8049 8000 Fax: +86 10 8049 8005
Email: sales.safety.cn@draeger.com

Representative Office**INDIA****JOSEPH LESLIE DRAEGER MFG PVT LTD**

Leslico House, Prof. Agashe Road
Off 87-C, Bhavani Shankar Road
Dadar (West), Mumbai 400028
Tel: +91-22-2422 1880/1878/7198
Fax: +91-22-2430 3705
Email: mumbai@lesliedraeger.com

Representative Office**INDONESIA****PT DRAEGERINDO JAYA**

Beverly Antasari Building
Jl. Pangeran Antasari No. 67, Unit L
Cilandak Barat, Jakarta, Selatan 12430
Tel: +6221 751 3289 Fax: +6221 751 2052
Email: product_support@draeger.co.id

Representative Office**JAPAN****DRAEGER SAFETY JAPAN LTD**

3-8-1 Toyo Koto-ku
Tokyo, Japan, Japan Zip 135-0016
Tel: +81 3 44 615111 Fax: +81 3 44 615100
Email: dlsjp-sales@draeger.com

Representative Office**KOREA****DRAEGER SAFETY ASIA**

Daejeong Bld. #1106
Bang-l-dong, Songpa gu, Seoul, Korea
Tel: +82 2 6415 8222 Fax: +82 2 6415 8223
Email: dsaseo3@maginc.com

Representative Office**MALAYSIA****DRAEGER SAFETY ASIA PTE LTD**

No. 14, Jalan PJS 11/18, Bandar Sunway 46150
Petaling Jaya, Malaysia
Tel: +60 3 5635 6460 Fax: +60 3 5635 4171
Email: dsa.malaysia@draeger.com

Representative Office**NEW ZEALAND****DRAEGER SAFETY PACIFIC PTE LTD**

Unit O, No. 150
Harris Road, East Tamaki, Auckland
Tel: +649 273 3160 Fax: +649 273 3159
Email: customer.service@draeger.com

Representative Office**SINGAPORE****DRAEGER SAFETY ASIA PTE LTD**

67 Ayer Rajah Crescent #06-03
Singapore 139950
Tel: +65 6872 9281 Fax: +65 6512 1908
Email: dsa.singapore@draeger.com
Website: www.draeger.com.sg

Regional Head Office**TAIWAN****DRAEGER SAFETY TAIWAN CO LTD**

12/F, Kuohwa Building
868-5 Chungcheng Road, Chungcho City
Taipei County, 235 Taiwan R.O.C.
Tel: +886 (02)2223-6388 Fax: +886 (02)2223-2258
Email: sales.taiwan@draeger.com

Representative Office**THAILAND****DRAEGER SAFETY (THAILAND) LTD**

123/20, Nonsi Road
Kwaeng Chongnonsi, Khet Yannawa
Bangkok 10120
Tel: +662 6811 781 (4 lines) Fax: +662 6811 780
Email: sales.thailand@draeger.com

Representative Office**VIETNAM****DRAEGER SAFETY ASIA PTE LTD**

No. 5, A2 Nguyen Khanh Toan Str.
Cau Giay District, Hanoi, Vietnam
Tel: +84 4 281 3463 Fax: +84 4 281 3461
Email: sales.safety.vn@draeger.com

Representative Office**FIKE****AUSTRALIA****FIRE PROTECTION TECHNOLOGIES****PTY LTD**

Unit 14, 42-44 Garden Blvd
Dingley
Victoria 3712
Australia
Tel: +61 3 9558 0715 Fax: +61 3 9558 0725
Email: Enquiries@fire-protection.com.au
Website: www.fire-protection.com.au

Dealer/Distributor

BANGLADESH**NAVANA INTERLINKS LTD**

205-207 Tejgaon I/A, Dhaka-1208, Bangladesh
Tel: +88 02-9892911 Fax: +88 02-9895252
Email: info@navana-iv.com Website: www.navana-iv.com

Dealer/Distributor**HONG KONG****THE JARDINE ENGINEERING CORPORATION LTD**

13/F Somerset House, Taikoo Place
979 King's Road, Hong Kong
Tel: +852 2807 4684 Fax: +852 2503 4210
Email: yick-kuen.kwong@jec.com
Website: www.jec.com

Dealer/Distributor**INDIA****NEWAGE INDUSTRIES**

Champaklal Ugyog Bhavan
Unit No. 7, Sion (East), Mumbai 100 022, India
Tel: +91 22 2407 7421 Fax: +91 22 2407 4229
Email: info@newage-india.com
Website: www.newage-india.com

Dealer/Distributor**INDONESIA****KARYA LESTARI MAKMUR PT**

Jl. Pangeran Jayakarta, 85AK, Jakarta 10730, Indonesia
Tel: +62 21 628 1933 Fax: +62 21 628 1976
Email: johnklima@cbn.net.id

Dealer/Distributor**KOREA****PARADISE INDUSTRY CO LTD**

#683-116 Hannam-Dong, Yongsan-Ku, Seoul, South Korea
Tel: +82 2 3780 8770 Fax: +82 2 3780 8772
Email: shlee@paradise-ind.co.kr
Website: www.paradise-ind.co.kr

Dealer/Distributor**MALAYSIA****FIKE ASIA PACIFIC SDN BHD**

18B Jalan Astaka L U8/L, Bukit Jelutong
40150 Shah Alam, Selangor, Malaysia
Tel: +60 3 7859 1462 Fax: +60 3 7859 1461
Email: chun-wah.leong@fike.com
Website: www.fike.com

Representative Office**SUKIADA ENGINEERING SDN BHD**

No. 20 Jalan Astaka L U8/L, Bukit Jelutong
40150 Shah Alam, Selangor, Malaysia
Tel: +60 3 7845 2008 Fax: +60 3 7845 6008
Email: bkwong@sukiada.com.my
Website: www.sukiada.com.my

Dealer/Distributor**PAKISTAN****MGH ENGINEERING AND CONTROL PVT LTD**

H. # 20 St., #5/A Kot Shahabdin
Shahdrah, Lahore 54950, Pakistan
Tel: +92 - 42 - 7913064 Fax: +92 - 42 - 7913064
Email: mansoorshaker@yahoo.com
Website: www.mgheng.com

Dealer/Distributor**PHILIPPINES****FIRE SOLUTIONS INC**

1028 Malaya Street, Mandalay
Marikina City, 1805 Philippines
Tel: +63 2 371 9774 Fax: +63 2 374 3041
Email: firesolutions@skynet.net

Dealer/Distributor**SINGAPORE****FIKE ASIA PACIFIC SDN BHD**

18B Jalan Astaka L U8/L, Bukit Jelutong
40150 Shah Alam, Selangor, Malaysia
Tel: +60 3 7859 1462 Fax: +60 3 7859 1461
Email: Chun-wah.leong@fike.com
Website: www.fike.com

Representative Office**SRI LANKA****BUILDING SERVICES (M&E) ENGINEER INTERNATIONAL PVT LTD**

122 Dawson Street, Colombo-02, Sri Lanka
Tel: +94 11 471 7500 Fax: +94 11 245 4653
Email: bldserv@sltnet.lk

Dealer/Distributor**TAIWAN****SUNMORN INC**

7F-2, 76, Nan Jing W. Road, Taipei 103, Taiwan
Tel: +886 2 2550 3500 Fax: +886 2 2550 5350
Email: menylyu@sunmoreinc.com
Website: www.sunmoreinc.com

Dealer/Distributor**THAILAND****ANTI-FIRE CO LTD**

316-316/1, Sukhumvit 22 Road
Klongtoey, Bangkok 10110, Thailand
Tel: +66 2 260 4565 9 Fax: +66 2 258 2422
Email: sithichai@antifire.com
Website: www.antifire.com

Dealer/Distributor**FIRE FIGHTING ENTERPRISES****AUSTRALIA****AMPAC TECHNOLOGY PTY LTD**

97 Walters Drive, Perth, Australia 6017
Tel: +61 892 423 333 Fax: +61 892 423 334
Website: www.ampac.net

Dealer/Distributor**BAHRAIN****KHAYBER TRADING COMPANY**

W.L.L, PO Box No. 1976, Cr.No. 40189-01
Manama, Bahrain
Email: FX ABB 50

Dealer/Distributor**CYPRUS****M.T. PIPERARIS TRADING LTD**

Nafpactou 19a, Lemesos 3051, Cyprus
Tel: +357 5 737311 Fax: +357 5 737310

Dealer/Distributor**HONG KONG****HLK SERVICES LTD**

Room 1111, Tower B, Hung Hom
Commerc'l Centre, 39 Ma Tau Wai Road,
Hung Hom, Kowloon, Hong Kong
Tel: +852 23303083 Fax: +852 23656128

Dealer/Distributor**INDIA****NITIN FIRE PROTECTION**

Industries Ltd, 501, Delta Technology St.
Hiranandani Gardens
Powai, Mumbai -400 076, India
Tel: +91 22 25700392 Fax: +91 22 25701110

Dealer/Distributor**ISRAEL****TELEFIRE FIRE & GAS**

Detectors Ltd, PO Box 7036
Petach-Tikva 49250, Israel
Tel: +972 3 9211955 Fax: +972 3 9211816

Dealer/Distributor**IRAN****NAR KOOB IRAN**

Apt 7, 3rd Floor, No 32, Varavini St.
Amir Atabak, St. Ostad Motahari Ave., Tehran - Iran
Tel: +98 21 88842649 Fax: +98 21 88307405

Dealer/Distributor**KOREA****HI MAX CO LTD**

Sicox Tower, 115-Ho 513-14
Sangdaewon-Dong, Jungwon-Gu
Sungnam-City, Kyungki Do, Korea
Tel: +82 31 769 7698
Email: khkim@himax19.co.kr

Dealer/Distributor**MALAYSIA****FITTERS ENG SERVS SDN BHD**

No.1 Block C, Jalan Dataran, Sd1 Pju 9
52200 Bandar Sri, Damansara, Kuala Lumpur, Malaysia
Tel: +60 3 62767155 Fax: +60 3 62758712

Dealer/Distributor**NEW ZEALAND****AMPAC INDUSTRIES LTD**

PO Box 100-149, North Shore Mail Centre
Glenfield, Auckland
Tel: +64 94438072 Fax: +64 94438073

Dealer/Distributor**QATAR****AL SHAIBEH ESTABLISHMENT**

PO Box 3975, Doha, Qatar
Tel: +974 4322140 Fax: +974 4416650

Dealer/Distributor**SINGAPORE****ACCLAIM SYSTEMS PTE LTD**

Blk 104, Boon Keng Road, 05-01
Singapore 339775
Tel: +656 2990 798 Fax: +656 299 3735

Dealer/Distributor**ALARM SUPPLY PTE LTD**

63 Jalan Pemimpin, 03-07
Pemimpin Industrial Bldg
Singapore 577219
Tel: 00 656 258 3445 Fax: 00 656 258 6428

Dealer/Distributor**SRI LANKA****FIRETECH (PVT) LTD**

34, Walter Gunasekara
Mawatha, Nawala, Sri Lanka
Tel: +94 1 8066613 Fax: +94 1 806666

Dealer/Distributor**SYRIA****ESS COMPANY**

PO Box 35478, Damascus, Syria

Dealer/Distributor**TAIWAN****HORING LIH IND CO LTD**

4f No 18 Lane 327, Chung Shan Road
Sec 2 Chung-Ho-City, Taipei Hsien, Taiwan
Tel: +886 2224 87599 Fax: +886 2224 07752

Dealer/Distributor**THAILAND****TEEYA MASTER SYSTS CO LTD**

100/101-102 Vongvanji, Building B, 30th Flr
Rama 9 Road, Huaykhwang, Bangkok 10320, Thailand
Tel: +662 2 6451130 Fax: +662 2 2488540

Dealer/Distributor**UNITED ARAB EMIRATES****NAFFCO**

PO Box 17014
Jebel Ali Free Zone Area, Dubai, U.A.E
Tel: +971 4 881 5653 Fax: +971 4 881 6229
Email: girish@naffco.ae

Dealer/Distributor**TELECTRON**

PO Box 2946, Al Salam Street
Bldg. No.5, Abu Dhabi, U.A.E
Tel: +971 26795333 Fax: +971 26794609

Dealer/Distributor**HOLMATRO RESCUE EQUIPMENT****AUSTRALIA****CHUBB FIRE SAFETY LTD**

120, Silverwater Road, Silverwater, NSW 2128
Locked Bag 102, Silverwater 1811
Contact: Andrew Loftus
Tel: 1300 369 309 Fax: 02 8748 7450
Email: firesafety@chubb.com.au
Website: www.chubb.com.au

Dealer/Distributor**CHINA****HOLMATRO CHINA****UNIT 14/D - 9 JOY TOWER**

9 Zhen Ning Road
Shanghai 200050, P. R. China
Contact: Floris Evers
Tel: +86 21 5238 7330 Fax: +86 21 5238 7320
Email: china@holmatro.com
Website: www.holmatro-china.com

Representative Office**HONG KONG****ABLESLINK CO LTD**

Unit B4, 2/F., Block B, Sheung Shui Plaza, 3 Ka Fu Close
Sheung Shui, N.T., Hong Kong
Contact: Mr Randy Hau
Tel: +852-2466 4568 Fax: +852-2466 4569
Email: ableslink@yahoo.com

Dealer/Distributor**INDONESIA****PT ESA KARYA MANDIRI****JL.SUNTER PARADISE**

Timur Raya, F21 No.C42, Jakarta 14350
Contact: Mr Benny N Liem
Tel: 062-21-6412936/65303502
Fax: 062-21-6412937
Email: esakarya@cbn.net.id

Dealer/Distributor**JAPAN****AKAO & CO LTD**

4-13-1 Shinmachi Nishi-ku, Osaka, Japan 550-0013
Contact: Masaya Saga
Tel: +81-6-6532-6256 Fax: +81-6-6532-3095
Email: info@akao-co.jp
Website: www.akao-co.jp

Dealer/Distributor

KOREA (SOUTH)**KEO WHA HITEC CO LTD**

Rm-1F1, Jiwoo Bldg, 376-12
Seogyo-dong, Mapo-gu, Seoul, Korea
Contact: Mr Kenneth Zyung
Tel: 82-(02)-336-0145-7 Fax: 82-(02)-336-0180
Email: jfckenneth@yahoo.co.kr
Website: www.kh-hitec.com

Dealer/Distributor**MALAYSIA****PANDAN NIAGA SDN BHD**

No. 81A, Jalan Tabla 33/21
Shah Alam Technology Park
Seksyen 333, 40400 Shah Alam
Selangor Darul Ehsan, Malaysia
Contact: Mohd Rashdi Abd Rahman
Tel: +603 5122 1310 Fax: +603 5122 1279
Email: prnsb@pn.com.my

Dealer/Distributor**NEW ZEALAND****CHUBB FIRE & SAFETY**

3 Fisher Crescent, Mt Wellington, Auckland
Contact: Steve Kirk
Tel: +64 9 270 7441 Fax: +64 9 270 7235
Email: fireandsafety@chubb.co.nz
Website: www.chubb.co.nz

Dealer/Distributor**PHILIPPINES****WALLGREEN INDUSTRIAL VENTURES CORP**

62 West Avenue, Quezon City, Philippines 1104
Contact: Francisco C Dizon
Tel: +6 32 411 0818 Mobile: +6 32 0917 820 1947
Fax: +6 32 411 0818 Email: wivcor@yahoo.com

Dealer/Distributor**TAIWAN****PARKSON TRADING CO LTD**

No. 50, 3F, Hua-Ning Rd, Guo Shan Dist.
80471 Kaohsiung City, Taiwan, R.O.C.
Contact: Mr Johnson Peng
Tel: +886-7-552-1650 Fax: +886-7-552-7999
Email: ptckpeng@parkson.com.tw

Dealer/Distributor**LANCIER****AUSTRALIA****FIRE & SAFETY WA**

Unit 2/63 Furniss Road, Landsdale WA
Contact: Kerry Lovett
Tel: +61 89 3023210 Fax: +61 89 3026110
Email: firewa@fireandsafetywa.com.au
Website: www.fireandsafetywa.com.au

Dealer/Distributor**BANGLADESH****ARION OVERSEAS**

186/1 Inner Circular Road, 1000 Dhaka
Bangladesh Motijheel
Tel: +880 27101369 Fax: +880 27100043
Email: arion@bdcom.com

Dealer/Distributor**BRUNEI****HANG SAN HARDWARE**

A13 & A14 Warisan Complex/Jln. Gadong
BE3919/PO Box 1770/Bandar Seri Begawan
BS8673
Tel: +67 324 7995 Email: hangsanbsb@yahoo.com

Dealer/Distributor**HONG KONG/CHINA/MACAU/TAIWAN****GRAND POWER ENGINEERING**

Tower A Room 503, Hung Hom
Kowloon, Hong Kong
Tel: +852 2365 5252 Fax: +852 2764 0237
Email: info@howswing.com
Website: www.howswing.com

Dealer/Distributor**INDIA****NEW AGE INDUSTRIES**

Ambawadi Industrial Estate, Gujarat
Tel: +91 2752 243651 Fax: +91 2224 074229
Email: neage@bom3.csnl.net.in
Website: www.newage-india.com

Dealer/Distributor**INDONESIA****P.T. SABERINDO PACIFIC**

Kompleks Ruko Cempaka Mas/
Blok J No. 10 Jl./Letjen Suprpto/10640 Jakarta
Tel: +62 214 2888282 Fax: +62 214 2884704
Email: saberindo@saberindo.co.id

Dealer/Distributor**KOREA****HOVERTECH**

Sejin Bronzville 1415, Maesano 1 Ga, Paldalu
442-081 Suwon
Tel: +82 312571415 Fax: +82 312571415
Email: cdelee@ihovtech.com

Dealer/Distributor**MALAYSIA****LSL-MERCURY**

11, Jalan 31/63, Kota Kemuning
Section 31, 40706 Shah Alam, Selangor D.E.
Tel: +60 35 222811 Email: maclsl@pd.jaring.my

Dealer/Distributor**NEW ZEALAND****LANCIER SOUTHWEST PACIFIC LTD**

64-66 Huia Road, Auckland, New Zealand
Tel: +64 9 276 0405 Fax: +64-9-276 6215

Representative Office**PAKISTAN****AHMAD MEDIX (PVT) LTD**

129/6 Quaid-e-Azam Industrial Estate
Township, Lahore
Tel: +92 42 5213441 Fax: +92425213441
Email: info@ahmadmedix.com

Dealer/Distributor**SINGAPORE****MCALISTER & COMPANY LTD**

257 Jalan Ahmad Ibrahim SG, 62914 Singapore
Tel: +65 6266 3088 Fax: +65 6265 7863

Dealer/Distributor**THAILAND****EMPIRE TECH CO LTD**

26/13-14, 26/15 Suit 101, 11140 Nonthaburi
Tel: +662 595 5027 Fax: +662-595-5029

Dealer/Distributor**VIETNAM****ANH HONG TECHNOLOGY****DEVELOPMENT CO**

133 Thai Ha Str., Hanoi
Tel: +84 4 3537 4250 Fax: +84-4 3537 4280
Email: anhhong-tdc@hn.vnn.vn

Dealer/Distributor**PAC FIRE AUSTRALIA****AUSTRALIA**

1/28 Burnside Road, Hallmarc Business Park
Yatala, QLD 4207, Australia
Tel: +61 7 3441 7100 Fax: +61 7 3441 7177
Website: www.pacfire.com.au

Representative Office**SAINT-SEA GROUP LTD****CHINA**

China Off: Room 301-302, Building No.20, Green Garden,
No.148, Zhaohui Road, Hangzhou, 310014, China
Tel: 0086-(0)571-85772095/85772184/85772331
Fax: 0086-(0)571-85772094/85772196
Email: saintsea@emaildisk.com
Email: linda@saintsea.com Website: www.saintsea.com

Representative Office**SCOTT HEALTH & SAFETY****AUSTRALIA/NEW ZEALAND****SCOTT HEALTH & SAFETY –****AUSTRALIA/NEW ZEALAND**

137 McCredie Road, Guildford
NSW 2161, Australia
Email: shscs@tycoint.com

Representative Office**SCOTT HEALTH & SAFETY –****AUSTRALIA/NEW ZEALAND**

Unit 4, Deakin Street, Brendale
QLD 4500, Australia
Tel: +61 7 3804 6814 Fax: +61 7 3204 3807
Email: Scottmarketing.anz@tycoint.com
Website: www.scotthealthsafety.com

Representative Office**CHINA****SHANGHAI EAGLE SAFETY EQUIPMENT LTD**

No. 1, Lane 955, Jinhai Rd, Pudong, Shanghai
Tel: +86 (0) 21 6163 3376 Fax: +86 (0) 21 6163 3372
Website: www.eagle-sh.com

Dealer/Distributor**SINGAPORE****SCOTT HEALTH & SAFETY**

No. 2 Serangoon North Avenue 5, #07-01, Singapore 554911
Contact: Tom Barrett
Tel: +(65) 9823-5700 Fax: +(65) 6245-6718
Email: tbarrett@tycoint.com

Representative Office**SECURITON****ASIA PACIFIC****SECURITON (M) SDN BHD**

No. 19A, Lorong Rahim Kajai 13, Taman Tun Dr. Ismail
MY-60000 Kuala Lumpur, Malaysia
Contact: Mr Lewis Chong
Tel: +60 3 7725 1699 Fax: +60 3 7725 1677
Email: asia@securiton.com.my
Website: www.securiton.com

Representative Office**AUSTRALIA****AUSTRALIAN FIRE ENTERPRISES (AFE)**

P.O. Box 7027, Manner Park, NSW 2259, Australia
Contact: Mr Mike Donegan/Mr Brett Gordon
Tel: 61 2 43 592 244 Fax: 61 2 43 593 301
Email: sales@austfire.com.au/afe@ozemail.com.au

Dealer/Distributor**NATIONAL SECURITY & SURVEILLANCE**

38 Lambert Street Richmond, Victoria 3121, Australia
Contact: Mr Dominic Paruit
Tel: +61 3 9428 8055 Fax: +61 3 9428 8065
Email: dominic.paruit@natss.com.au
Website: www.natss.com.au

Dealer/Distributor**CHINA, BEIJING****SWISS SECURITAS FIRE AND SECURITY****SYSTEMS TECHNOLOGY (BEIJING)****CO LTD**

Room 1808-11, 18th Floor Shouchuang Mansion
No.6 North Street, Chaoyangmen
Dongcheng Area, Beijing 100027, P.R.China
Contact: Mr Lewis Chong/Mr Todd Zeng
Tel: +86 10 6406 0558 Fax: +86 10 6406 6934
Email: todd.zeng@securiton.cn
Website: www.securiton.cn

Dealer/Distributor**BEIJING Z-N MECHANICAL & ELECTRICAL EQUIPMENT CO LTD**

1 #B910,Lingdi Office, No.13 Beiyuan Lu
Chaoyang District Beijing, China 100012
Contact: Ms Sarah Zhang
Tel: 86 10 5207 3836 Fax: 86 10 5207 3839
Email: sarahzh@vip.sina.com/bjzhongna@yahoo.com.cn

Dealer/Distributor**CHINA, SHANGHAI****SWISS SECURITAS (BEIJING) CO LTD****SHANGHAI COMPANY**

Room A, 23rd Floor Shimei Mansion
No. 445 Jiangning Road Jing'an Area
Shanghai 200041, P.R.China
Contact: Mr Lewis Chong/Mr Todd Zeng
Tel: +86 21 5228 8111 Fax: +86 21 5228 8325
Email: todd.zeng@securiton.cn

Dealer/Distributor**SHANGHAI ZHENYE INDUSTRY CO LTD**

No. 3 221, Cao Bao L, Shanghai, 200233
Contact: Mr Jack Shen
Tel: 86 21 6451 2922/2933 Fax: 86 21 6451 9955
Email: sy1199@163.com Website: www.shzhenye.com

Dealer/Distributor**CHINA, SHENZHEN****SHENZHEN YAOHUAJI CHINA CO LTD**

RM.F, 20th Floor Yong – Hui Building
Guo-Qi Building, Shenzhen
Contact: Mr Raymond Ng/Ms Shi
Tel: +86 755 8212 9831 Fax: +86 755 8212 9909
Email: rng@ywk.com.hk Website: www.ywk.com.hk

Dealer/Distributor**HONG KONG****YIU WAH (KOGARAH) CO LTD**

Room 901, 9th Floor, No 113 Argyle Street
Mongkok, Kowloon, Hong Kong
Contact: Mr Raymond Ng
Tel: +852 2781 1384 Fax: +852 2782 6652
Email: ywk@ywk.com.hk Website: www.ywk.com.hk

Dealer/Distributor**INDIA, MUMBAI****BAJAJ ELECTRICALS LTD**

15/17, Sant Savta Marg, Reay Road, Mumbai – 400010
Contact: Mr Ravichandran Sr. (General Manager)
Tel: +91 22 2372 4192 Fax: +91 22 2373 0504
Email: bms@bajajelectricals.com
Website: www.bajajelectricals.com

Dealer/Distributor

VIMAL FIRE CONTROLS PVT LTD

19/20 Vardhaman Service
Industrial Estate, L.B.S. Marg.
IN-400083 Vikhroli (West) Mumbai, India
Contact: Mr Vijay Doshi/Mr Nalin Doshi
Tel: +91 22 2578 3335 Fax: +91 22 2578 3338
Email: nalin@vimalfire.com/falgun@vimalfire.com
Website: www.vimalfire.com

Dealer/Distributor**HSE ENGINEERS PVT LTD**

2, Durgas Niwas, 1st Floor
Bhawani Tower Compound
Behind Bhawani Petrol Pump
IIT Powai, Mumbai 400076, India
Contact: Mrs Sapna Prajapati
Tel: +91 22 2578 7014 / 7015
Fax: +91 22 2578 7016
Email: hsemumbai@hseengineers.com
Website: www.hseengineers.com

Dealer/Distributor**KOREA (SOUTH)****ROYAL INDUSTRIAL TECHNOLOGY CORPORATION**

Royal Building, 3rd Floor, 840-5 Yeoksam-Dong
Kangnam-Ku, Seoul 135080, Korea
Contact: Mr E S Kim/Mr J K Chung
Tel: +82 2 2009 1800 Fax: +82 2 567 8831
Email: kes@ritco.co.kr/jkchung@ritco.co.kr
Website: www.ritco.co.kr

Dealer/Distributor**MALAYSIA****FITTERS SDN BHD**

No, 1 Jalan Tembaga SD5/2
Sri Damansara, 52200 Kuala Lumpur
Contact: Dato' Richard Wong
Tel: +60 3 6276 7155 Fax: +60 3 6175 2780
Email: eugene@fittersgroup.com
Website: www.fittersgroup.com

Dealer/Distributor**SYARIKAT LETRIK CHEN GUAN SDN BHD**

Lot 1178 Jalan Subang 3, Taman Industri Sg.
Penaga, 47610 Subang Jaya, Selangor, Malaysia
Contact: Mr Choong Yew Lim
Tel: +603 5634 1436 Fax: +603 5634 2349
Email: chenguan@streamyx.com

Dealer/Distributor**PAKISTAN****EVERGREEN DEVELOPMENT CORPORATION**

Suite # 514, 5th Floor, Clifton Centre
Block 5 Kehkashan, Clifton
Karachi 75600, Pakistan
Contact: Mr Munavar Afridi
Tel: +92 21 5873 448 Fax: +92 21 5870 080
Email: genco@cyber.net.pk
Website: www.edcpl.com

Dealer/Distributor**SINGAPORE****SWISS SECURITAS ASIA PTE LTD**

56 Serangoon North Ave 4, #06-03
Singapore 555851
Contact: Mr Andy Gan/Mr Michael Boon
Tel: +65 6853 8066 Fax: +65 6853 5939
Email: mike.boon@securitas.sg
Website: www.securitas.sg

Dealer/Distributor**TAIWAN****ATLAS TECHNOLOGY CORPORATION**

22F, No 1 Bausheng Road, Yunghe City
Taipei, Taiwan 234, R.O.C.
Contact: Mr David Liu
Tel: +886 2 223 20 556 Fax: +886 2 223 16 657
Email: david@atlasgroup.com.tw/
hunter@atlasgroup.com.tw
Website: www.atlasgroup.com.tw

Dealer/Distributor**KGIC TECHNOLOGY CO LTD**

No. 49 Goang Shi Road
Kaohsiung 806, Taiwan R.O.C.
Contact: Mr Franco Lee
Tel: +886 7 715 4285 Fax: +886 7 715 4401
Email: lic@ms9.hinet.net
Website: www.gictec.com.tw

Dealer/Distributor**UNIVERSAL PATHS DEVELOPMENT CORPORATION (UPDC)**

9F-1, 306, Sec. 1, NeiHu Road
Taipei 114, Taiwan R.O.C.
Contact: Mr Terry Chung/Ms Ellie Chou
Tel: +886 2 8751 6055 Fax: +886 2 8751 6053
Email: ellie@updc.com.tw Website: www.updc.com.tw

Dealer/Distributor**SOLBERG SCANDINAVIAN AS****AUSTRALIA****SOLBERG ASIA PACIFIC PTY LTD**

P.O. Box 182, Kingswood NSW 2747, Australia
Contact: Ted Schaefer (Technical Manager)
Tel: 61 2 9673 5300 Email: ted@solbergfoams.com
Website: www.solbergfoams.com

Representative Office**MALAYSIA****RHINOSHIELD INDUSTRIES(M) SDN BHD**

H-0-5 Ground Floor Plaza Damas
No. 60 Jalan Sri Hartamas 1
Sri Hartamas
50480 Kuala Lumpur, Malaysia
Contact: C K Lim (General Manager)
Tel: +603 62033850 Fax: +603 62032245
Email: rhinoshield@pd.jaring.my

Dealer/Distributor**TASK FORCE TIPS INC****AUSTRALIA****GAAM EMERGENCY PRODUCTS**

29 Temple Dr., P.O. Box 211
Thomastown, Victoria 3074, Australia
Tel: +61 3 9466 1244 Fax: 61 3 9466 4743
Email: iprice@tycoint.com
Website: www.gaam.com.au

Dealer/Distributor**CHINA****SHANGHAI JINDE INDUSTRY DEVELOPMENT CO LTD**

Room 610, 1 Lane 50, Xin Cun Road
Shanghai, 200065, China
Tel: +86 21-360-50599 Fax: +86 21-360-55599
Email: jmgushon@online.sh.cn

Dealer/Distributor**HONG KONG****ROTTER INTERNATIONAL LTD**

Unit A G/F, Hung To Road
6-8 Hung To Road
Kowloon, Hong Kong
Tel: 85227517770 Fax: 85227562051
Email: jacky@rotter.com.hk

Dealer/Distributor**INDIA****FOREMOST TECHNICO PVT LTD**

M-1, Green Park Extension
New Delhi 110016, India
Tel: +91 (11) 2619 6982 Fax: +91 (11) 2616 6961
Email: foremost@hathway.com
Website: www.foremost-india.com

Dealer/Distributor**INDONESIA****PT PALMAS ENTRACO**

Jl. Krekot 85, Jakarta-Pusat, Indonesia
Tel: +62 (21) 384 1681 Fax: +62 (21) 380 2660
Email: ptpalmas@attglobal.net

Dealer/Distributor**JAPAN****YONE CORPORATION**

23, Nishinakai-Cho
Nishinokyo
Nakagyo-Ku, Kyoto 604, Japan
Tel: +81 (7) 582-11185 Fax: +81 (7) 580-12263
Email: t.yone@myad.jp
Website: www.yone-co.co.jp

Dealer/Distributor**KOREA (SOUTH)****SHILLA FIRE CO LTD**

433-11 Non Hon-Dong
Nam Dong-Gu
Incheon City 405-300, South Korea
Tel: +82-02-3665 9011 Fax: +82-02-3663 9113
Email: kofire77@hotmail.com
Website: www.firekorea.com

Dealer/Distributor**MALAYSIA****SENTRIX TECHNOLOGY SDN BHD**

No. 2A-2, 1st Floor Jalan USJ 21/7
UEP Subang Jaya
47630 Subang Jaya
Selangor Darul Ehsan, Malaysia
Tel: +603 8023-5228 Fax: +603 8023-5618
Email: chong@sentrrix.com.my
Website: www.sentrrix.com

Dealer/Distributor**PAKISTAN****FIRESTOP PVT LIMITED**

6/B, 1st Floor, Dinar Chambers
P.O. Box # 5786
West Wharf Road
Karachi-74000, Pakistan
Tel: 9221-2315675, 2313065
Fax: 9221-2310457, 5831015
Email: info@firestopaids.com
Website: www.firestopaids.com

Dealer/Distributor**PHILIPPINES****ALLIANCE INDUSTRIAL SALES**

Unit 4, Finlandia Town Homes
#1700 Dian, cor. Finlandia Street
Brgy. San Isidro, 1234 Makati City
Philippines
Tel: +63 21 7546 1749 Fax: +63 2 887 7173
Email: alliance8_jcy@pacific.net.ph

Dealer/Distributor**SINGAPORE****S.K. FIRE PTE LTD**

8 Tuas Drive 2, Singapore 638643
Singapore
Tel: +65 6862 3155 Fax: +65 6862 0273
Email: houchin@skfire.com
Website: www.skfire.com

Dealer/Distributor**TAIWAN****YONE CORPORATION**

23, Nishinakai-Cho
Nishinokyo
Nakagyo-Ku, Kyoto 604, Japan
Tel: +81 (7) 582-11185 Fax: +81 (7) 580-12263
Email: t.yone@myad.jp
Website: www.yone-co.co.jp

Dealer/Distributor**THAILAND****ANTI-FIRE, CO LTD**

316-316/1, Sukhumvit 22 Road
Klongtoey Klongtoey
Bangkok 10110, Thailand
Tel: 6622596898 Fax: 6622582422
Email: sithichai@antifire.com
Website: www.antifire.com

Dealer/Distributor**TYCO FIRE SUPPRESSION & BUILDING PRODUCTS****SINGAPORE****TYCO FIRE SUPPRESSION & BUILDING PRODUCTS**

2 Serangoon North Avenue 5, #07-01 Fu Yu Building,
Singapore 554911, Singapore
Tel: (+65) 6577 4360 Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com

Representative Office**ANSUL**

2 Serangoon North Avenue 5, #07-01 Fu Yu Building,
Singapore 554911, Singapore
Tel: (+65) 6577 4360 Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com Website: www.ansul.com

Representative Office**HYGOOD**

2 Serangoon North Avenue 5, #07-01 Fu Yu Building,
Singapore 554911, Singapore
Tel: (+65) 6577 4360 Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com Website: www.hygood.co.uk

Representative Office**PYRO-CHEM**

2 Serangoon North Avenue 5, #07-01 Fu Yu Building,
Singapore 554911, Singapore
Tel: (+65) 6577 4360 Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com Website: www.pyrochem.com

Representative Office**SKUM**

2 Serangoon North Avenue 5, #07-01 Fu Yu Building,
Singapore 554911, Singapore
Tel: (+65) 6577 4360 Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com Website: www.skum.com

Representative Office**SABO FOAM**

2 Serangoon North Avenue 5, #07-01 Fu Yu Building,
Singapore 554911, Singapore
Tel: (+65) 6577 4360 Fax: (+65) 6481 8791
Email: sales-ap@tycofp.com
Website: www.sabofoam.com

Representative Office

SUBSCRIPTIONS

ASIA PACIFIC FIRE MAGAZINE

GET YOUR SUBSCRIPTION NOW!!!



**APF IS PUBLISHED 4 TIMES A YEAR
– MARCH, JUNE, SEPTEMBER
AND DECEMBER**

Name: _____

Company/Organisation: _____

Address: _____

Telephone: _____

Fax: _____

E-mail: _____

Start Subscription from Issue: _____

Subscription Rates: Sterling £50.00 AUS Dollars – \$100.00
US Dollars – \$70.00

Back Issues: US \$8.00 or £5.00 each inclusive of P&P
(subject to availability)

METHODS OF PAYMENT:

Website Subscription: www.mdmpublishing.com

Cheque: _____ MDM Publishing Ltd.

Visa/Mastercard No: _____

Expiry Date: _____ Security Code: _____
(last three digits on reverse of card)

If paying by credit card please fax details. DO NOT post/mail.
Fax: +44 (0) 1935 426926

MDM Publishing Ltd.

The Abbey Manor Business Centre, The Abbey, Preston Road,
Yeovil, Somerset BA20 2EN, United Kingdom

ADVERTISERS' INDEX

Angus Fire	18
Bauer Compressors Asia Pte Ltd.	32
Black Diamond Group Inc	06
Bio-Ex S.A.	21
Bristol Uniforms Ltd.	32
Coltri Asia Pacific Co. Ltd.	21
Cutters Edge	48
Dafo Fomtec AB	37
Draeger Safety Asia Pte Ltd.	OBC
Dr. Sthamer Hamburg	51
Fike Corporation	45
Fire Fighting Enterprises	27
Firetrace International	24
GB Solo Ltd.	38
Gielle Srl	29
Holmatro Rescue Equipment	53
Lancier Hydraulik Co. KG	41
NFPA	04
PAC Fire Australia	11
Plastika Akrapovic	35
SaintSea Group	41
Scott Health & Safety	54
Securiton AG	27
Sevo Systems	42
Solberg Asia Pacific Pty. Ltd.	38
Streamlight	31
Super Vacuum Manufacturing Inc.	50
Task Force Tips, Inc.	IFC / 23
Texas A & M Emergency Services Training Institute	53
Tyco Fire Suppression & Building Products – Asia Pacific – Ansul	47
Unifire Power Blowers	57
Ziamatic Corporation	IBC



Quic-Lock SCBA Bracket
Model: QLM-U

For over 45 years ZICO has been providing the fire service with quality products and dependable service. We stand behind all of our products and are constantly improving existing ones to ensure customer satisfaction. When the name ZICO or ZIAMATIC appears on a product you can be assured of a top quality product at a reasonable price...backed by extensive field testing.

ZICO

Complete line of
halligan bars



**Quic-Hold
Mechanical
SCBA Bracket**



**Quic-Draft
Floating
Strainers**



**Quic-Draft
Suction Strainers**

Developed by Professionals For the Professionals



Dräger FPS 7000
Dräger PSS 7000

A product developed for extreme conditions

The Dräger PSS 7000 is the result of Dräger's ongoing commitment to providing professional fire fighters with a world class state-of-the-art breathing apparatus.

Key new features of the PSS 7000 is the harness that uses advanced materials and moulding methods to produce exceptional wear resistance and a high grip anti-slip surface to ensure that the harness remains secure on the body.

With easier seamless integration and interface with the facemask, communication equipment, head protection and good ergonomic design to create a higher performance personal safety system, the Dräger PSS 7000 is a major leap forward in the evolution of breathing apparatus for the professional fire fighter.